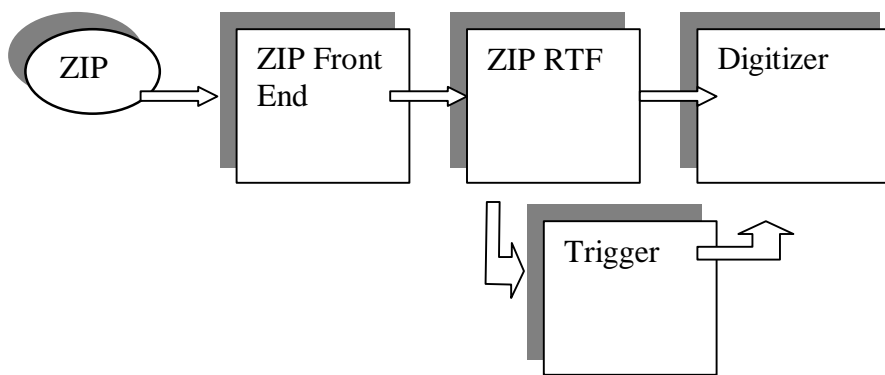


RTF DESIGN SPECIFICATIONS

December 17, 2000

Donna Kubik



RTF DESIGN SPECIFICATIONS

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1 The RTF Module

The RTF (Receive Trigger Filter) module provides an interface between the ZIP (Z-sensitive Ionization and Phonon) front end module and the DAQ (Data Acquisition) system. The RTF module's multifunctionality is reflected in its name. A block diagram of "The RTF Module" may be viewed on page 11.

2 Receive

Six signals are received from the ZIP front end module; four phonon signals and two charge signals. Each of these signals is received differentially by an INA103K instrumentation amplifier via a 25-pin D connector located at the rear of the module.

The amplifier receives differential signals from the backplane, via the 25-pin D connector and converts them to single-ended signals referenced to analog ground.

Each received signal drives both the Trigger circuitry and the Filter circuitry.

3 Trigger

- Block diagrams of the Charge and Phonon Trigger circuitry may be viewed on pages 12 and 13, respectively.
- Each RTF trigger input signal from the front end will be switchable to either Si or Ge bandpass circuitry. The selection will be via jumpers on the board. The position of the jumper will be clearly labelled on the board. The present position of the jumper (Si or Ge) will be indicated by an LED on the front panel and via computer.
- Each bandpass will be formed by a low pass and a high pass filter. Each filter will be a single pole filter, with a rolloff of 20dB / decade. The bandpass for each circuit will be determined during Run 20.
- There will be two charge (Q HI and Q LO) and three phonon trigger outputs (P HI, P LO, and P WISP).
- The gain for Q LO, P LO, and P WISP will be 100. The gain for Q HI and P HI will be 1/2.

- Inputs to the summing circuits will be selected via computer-controlled switches.
- To prevent multiple triggering on a noisy signal, the trigger circuit for P HI, P LO, P WISP, Q HI, and Q LO will have 80% hysteresis. The threshold level will drop to 20% of the initial value after triggering. The initial value will be restored after triggering on the lower level as shown in FIG. 1.

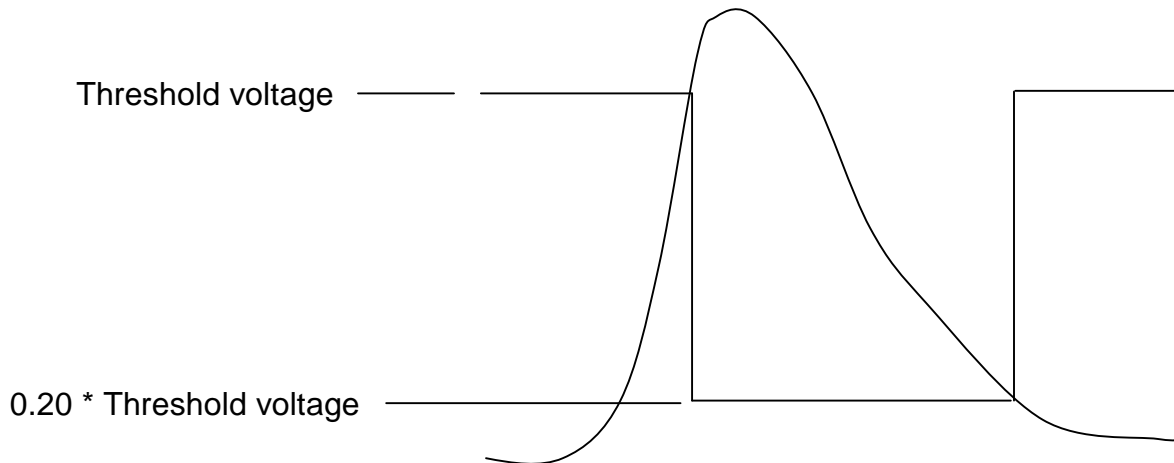


FIG. 1 Hysteresis of threshold voltage

- In the event P WISP has problems with multiple triggering on a noisy signal using the hysteresis circuit described above, an alternative trigger circuit for P WISP using a non-retriggerable one-shot with a 100us delay will be provided. The switch between the two options would require a change in hardwiring.
- There are seven outputs each for P HI, P LO, P WISP, Q HI, and Q LO. These outputs and their destinations are shown in TABLE 1.

| Output signal | Destination |
|----------------------------|-----------------------|
| Trigger from 1 us oneshor | Trigger conditioner |
| Trigger from 1 us oneshot | Front panel test port |
| Trigger from 1 us oneshot | Scalar |
| Trigger from 20 ms oneshot | Front panel LED |
| Threshold | Slow ADC |
| Threshold | Front panel test port |
| Filtered output | Front panel test port |

TABLE 1 RTF board trigger, threshold, and filter output signals

4 Filter

- A block diagram of the filter circuitry, titled "RTF Filter", may be viewed on page 14.
- Either a -1.5 V offset (to match the $\pm 2V$ bipolar range of the digitizers) or no offset will be applied to the signal via a computer-controlled switch prior to digitization.
- Care will be taken in the design to ensure that signals input to the digitizer do not exceed limits that will cause damage. The input amplifier of the Joerger digitizer is powered by $\pm 5V$, so clamping the input signal to the digitizer at $\pm 5V$ will be sufficient to protect the digitizer.
- There will be two signal outputs per channel.

One output, filtered by a four-pole Butterworth antialias filter with a jumper-selectable choice of 0.5 MHz or 1 MHz rolloff frequency (corresponding to digitization at 1.25 MHz or 2.5 MHz), will go to the digitizer. The present position of the jumper will be indicated by an LED on the front panel. The filter will be constructed with discrete components with noise $< 0.5mV$ (i.e. less than digitizer noise). The front end receiver circuit on the VTR812 Joerger Digitizer is shown on page 18.

The other output, with no filtering, will go to a front panel test port for monitoring on test equipment.

- These outputs and their destinations are shown in TABLE 2.

| Output signal | Destination |
|---|------------------------|
| Anti-aliased signal (jumper-selectable 0.5 MHz or 1 MHz) | Joerger fast digitizer |
| Unfiltered signal | Front panel test port |

TABLE 2 RTF board signal outputs and their destination

5 Slow signals

- A block diagram of the slow signal circuitry, titled "RTF Slow Signals", may be viewed on page 15.
- There will be provision for five slow signals. Four of these will be used to monitor the SQUID amplifier feedback DC voltage. The remaining one will be a spare.
- The five slow signals will be input via the 25-pin D connector multipin connector on the back of the RTF board. This is the same 25-pin D connector that brings in the four phonon and two charge signals.
- The outputs will be buffered with a gain of one.
- The outputs will be split with one output to a slow ADC and the other output to a front panel test port. These outputs and their destinations are shown in TABLE 3.

| Output signal | Destination |
|---------------------------|-----------------------|
| Buffered with gain of one | Slow ADC |
| Buffered with gain of one | Front panel test port |

TABLE 3 RTF slow signal outputs and their destination

6 RTF input signal characteristics

| <i>Input signal</i> | <i>Source</i> | <i>ZIP Board Source Impedance</i> | <i>Typical signal level</i> | <i>Absolute maximum voltage</i> |
|-------------------------------|---------------|-----------------------------------|-----------------------------|---------------------------------|
| Phonon (A,B,C,D) | ZIP front end | 50 Ω | 0-4V | $\pm 15V$ |
| Charge (Qi, Qo) | ZIP front end | 50 Ω | 0-4V | $\pm 15V$ |
| Slow signal SQUID dc feedback | ZIP front end | 20k Ω | <1V | $\pm 15V$ |

7 RTF output signal requirements

| <i>Output signal</i> | <i>Destination</i> | <i>Input impedance</i> | <i>Typical signal level</i> | <i>Absolute maximum voltage</i> | <i>Pulse width and tolerance</i> |
|--------------------------|---------------------------------|--|--|--------------------------------------|----------------------------------|
| Antialiased signal | Fast digitizer (Joerger VTR812) | 50 Ω or 10M Ω | 0-4V or $\pm 2V$ | >2V clamp without compromising pulse | |
| Trigger from 1us oneshot | Trigger conditioner | 100k Ω to GND | Logic 0 0 - 1.16V Logic 1 1.6- 5.0V defined by XILINX XC4000 | 5.5 V | |
| Trigger from 1us oneshot | Scaler | 50 Ω to GND or 500 Ω to 5V | TTL | TTL | 10ns<t<1us* |
| Threshold | Slow ADC | 5M Ω in parallel with 50pF | 0-5V | 10V | |
| SQUID DC feedback | Slow ADC | | <1V | 10V | |

* Interval chosen to both minimize the chance of double-counting on noise and to avoid missing a count due to pulse pileup

8 Summary of all output signals

For ease of viewing, all RTF outputs described above are presented below:

| Output signal | Destination |
|----------------------------|-----------------------|
| Trigger from 1 us oneshor | Trigger conditioner |
| Trigger from 1 us oneshot | Front panel test port |
| Trigger from 1 us oneshot | Scalar |
| Trigger from 20 ms oneshot | Front panel LED |
| Threshold | Slow ADC |
| Threshold | Front panel test port |
| Filtered output | Front panel test port |

TABLE 1 RTF board trigger, threshold, and filter output signals

| Output signal | Destination |
|---|------------------------|
| Anti-aliased signal (jumper-selectable 0.5 MHz or 1 MHz) | Joerger fast digitizer |
| Unfiltered signal | Front panel test port |

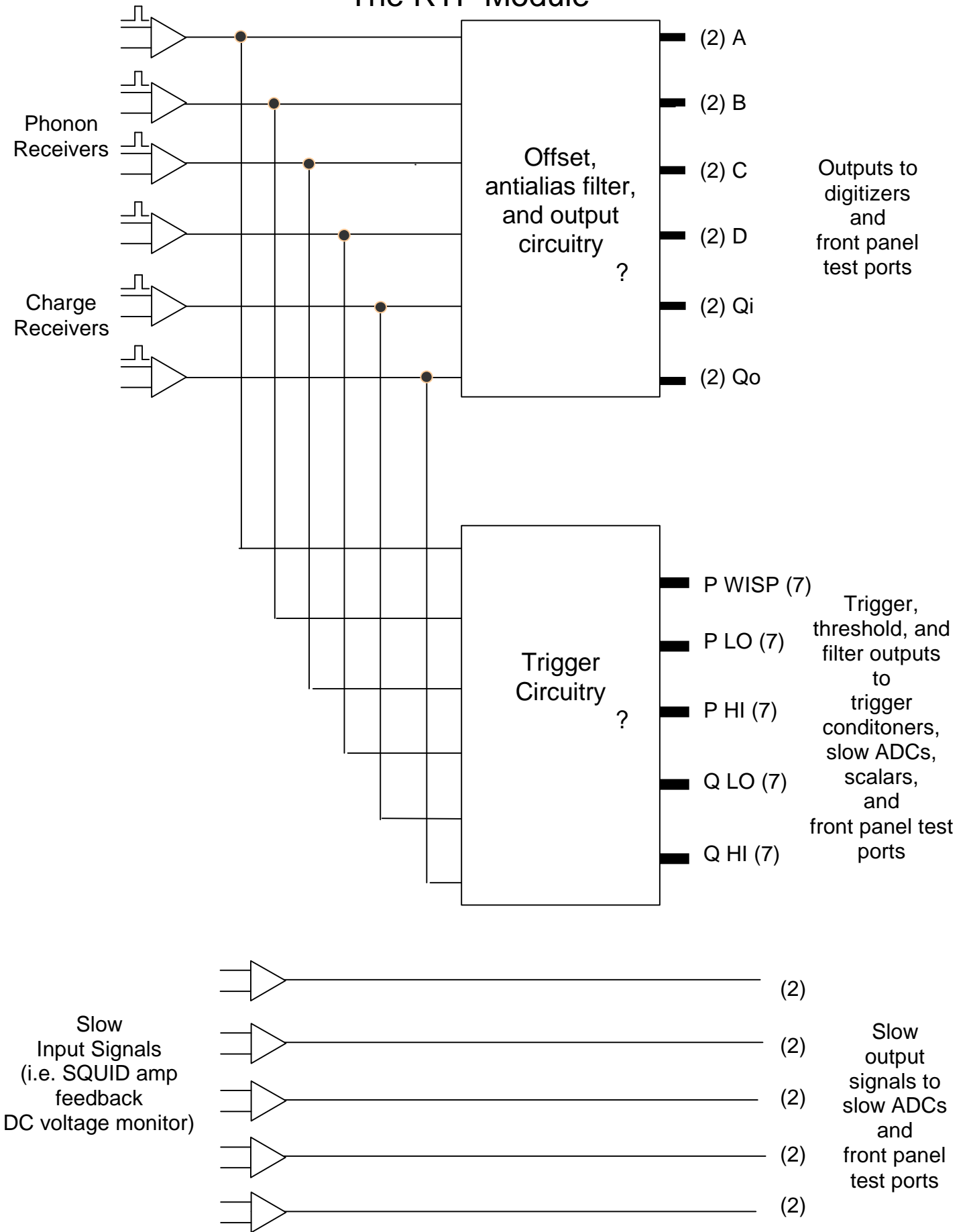
TABLE 2 RTF board signal outputs and their destination

| Output signal | Destination |
|---------------------------|-----------------------|
| Buffered with gain of one | Slow ADC |
| Buffered with gain of one | Front panel test port |

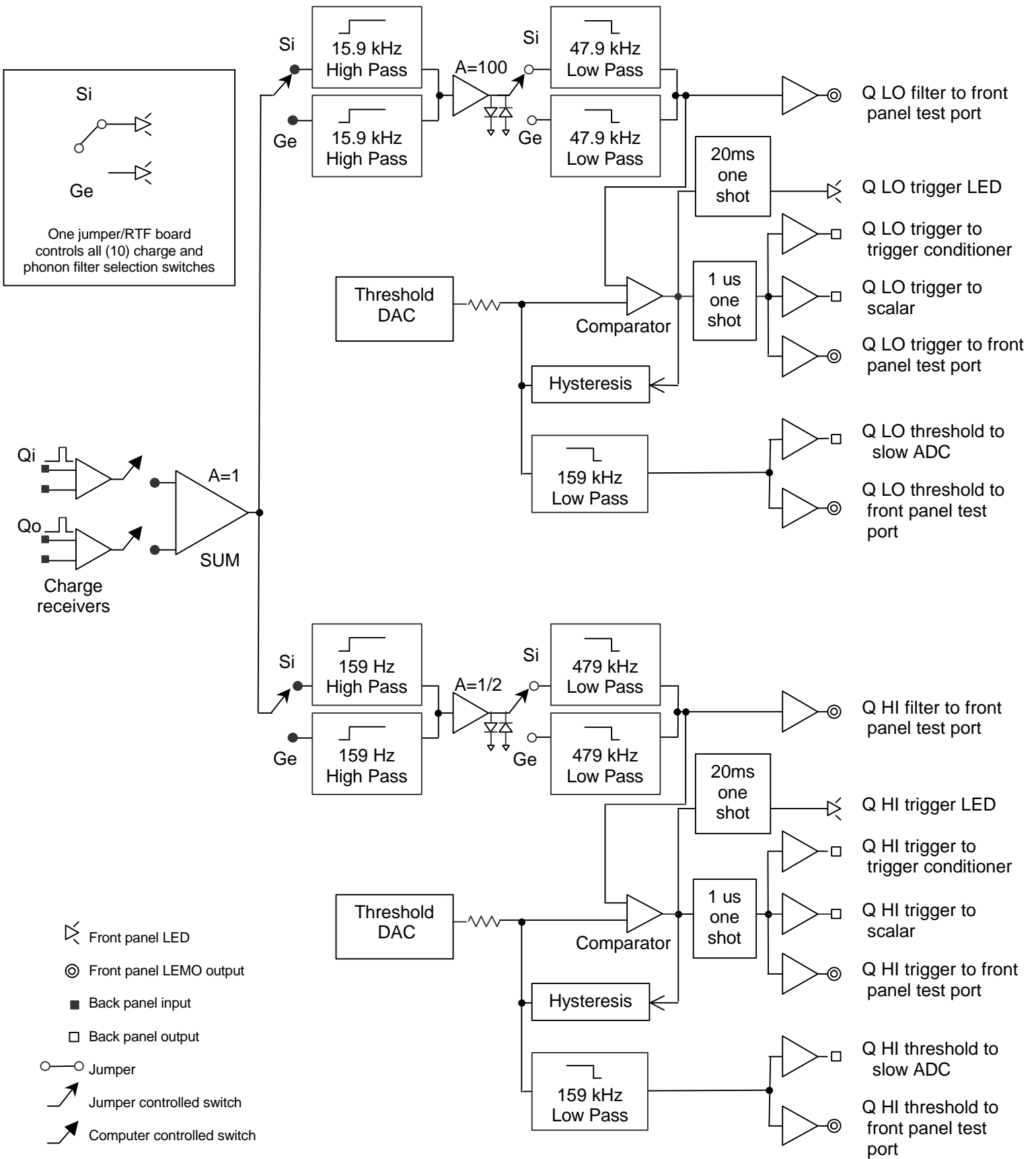
TABLE 3 RTF slow signal outputs and their destination

9 RTF Block Diagrams

The RTF Module

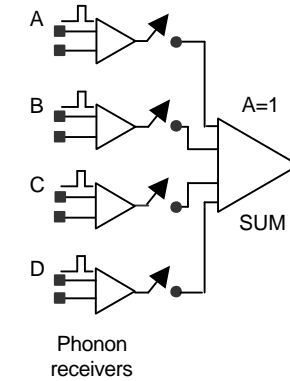
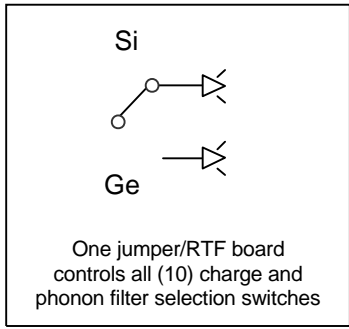


RTF Charge Trigger

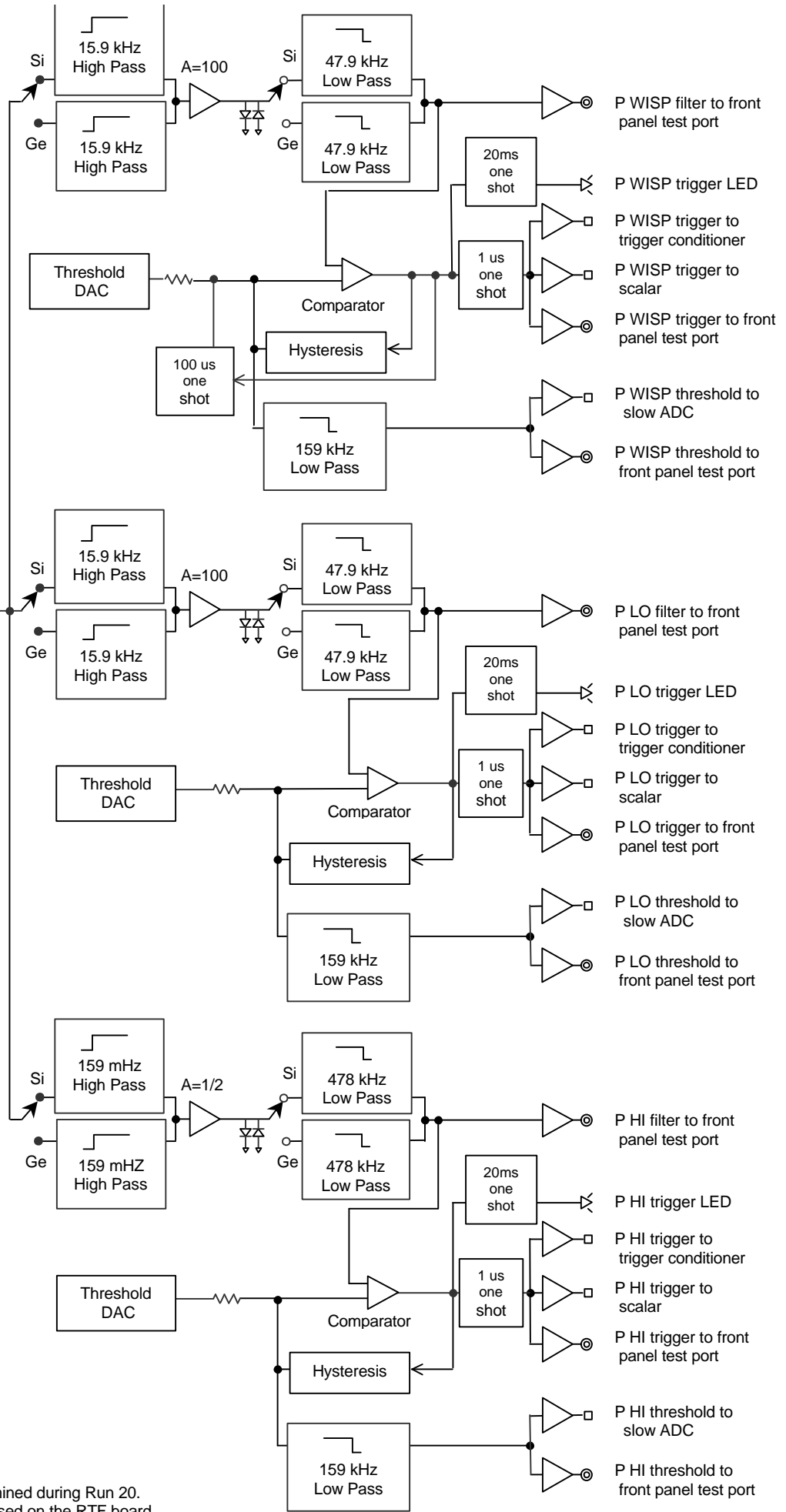


The bandpasses for Si and Ge will be determined during Run 20.
The frequencies shown are those currently used on the RTF board.

RTF Phonon Trigger











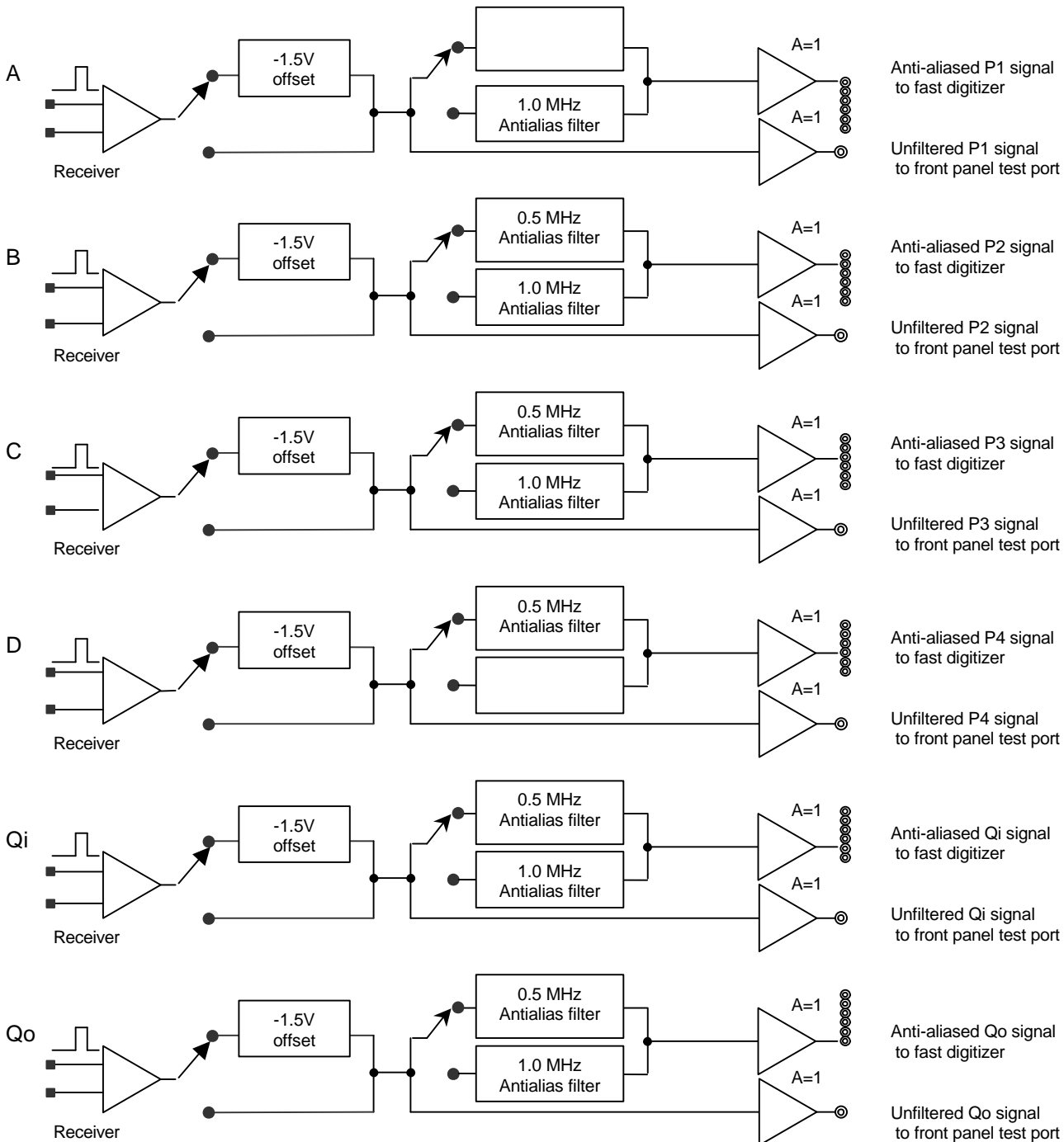
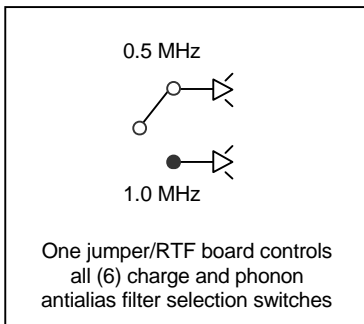
- Front panel LED
- Front panel LEMO output
- Back panel input
- Back panel output
- Jumper
- Jumper controlled switch
- Computer controlled switch



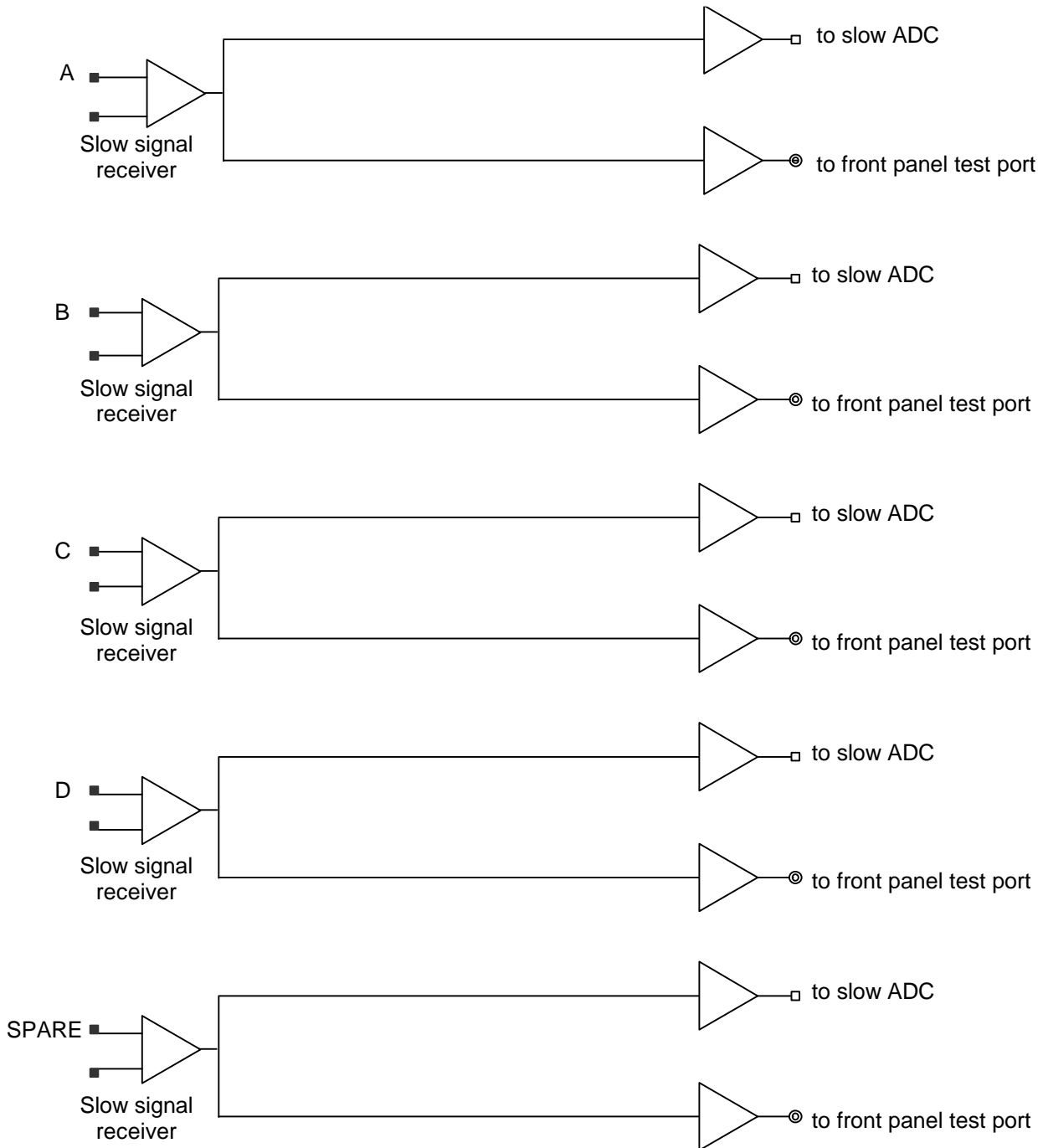
The bandpasses for Si and Ge will be determined during Run 20.
The frequencies shown are those currently used on the RTF board.


RTF filter (Physics signals)

-  Front panel LED
-  Front panel LEMO output
-  Front panel flat coax output
-  Back panel input
-  Back panel output
-  Jumper
-  Jumper controlled switch
-  Computer controlled switch





RTF Slow Signals DC FEEDBACK




 Front panel LED


 Front panel LEMO output

 Back panel input

 Back panel output

 Jumper

 Jumper controlled switch

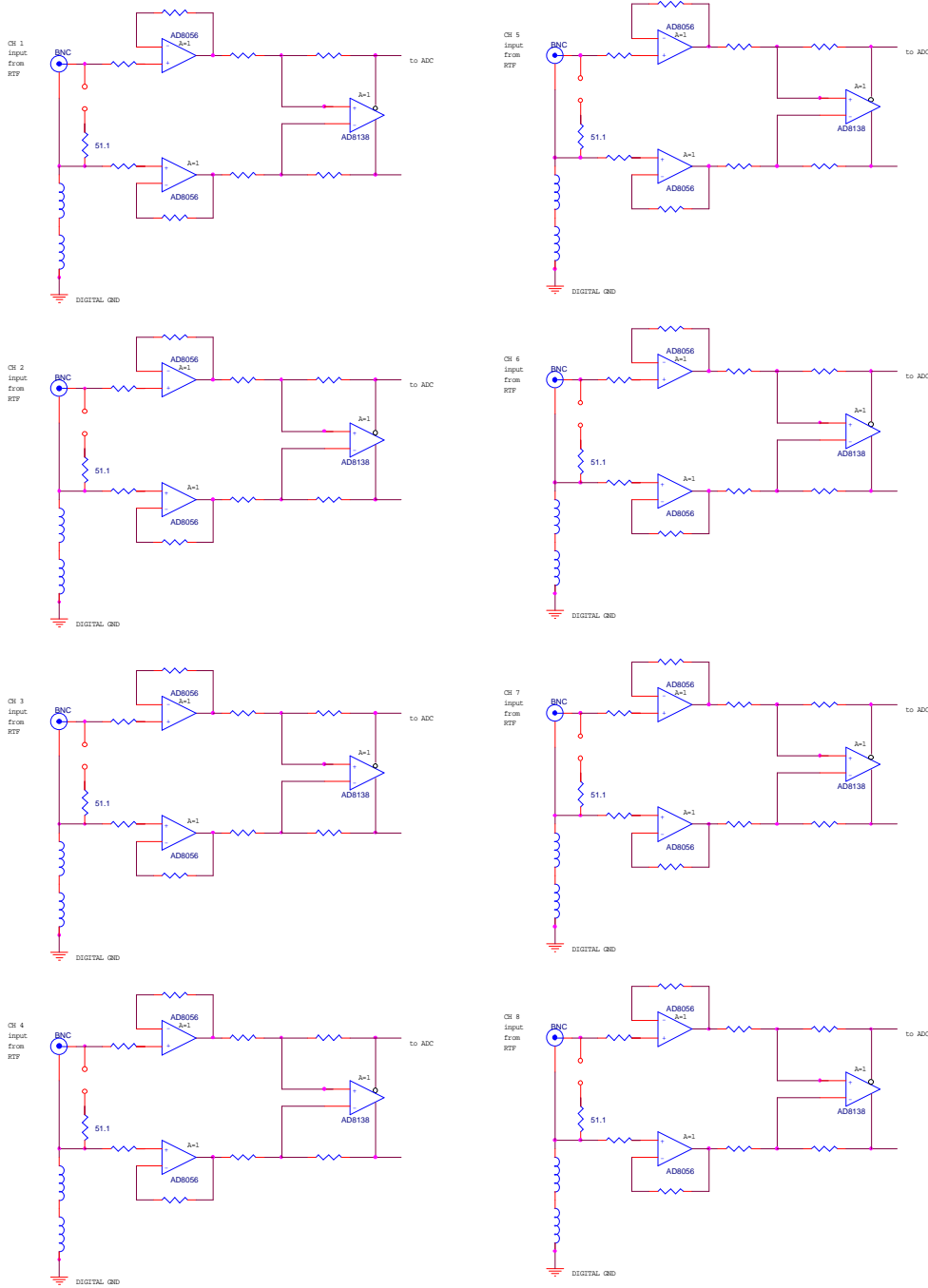
 Computer controlled switch

10 RTF front panel



8 Joerger VTR812 front end receiver

Front end receivers on Joergers VTR812 digitizer



NOTE 1 Each channel has its own ANALOG GND.

NOTE 2 There is one DIGITAL GND.

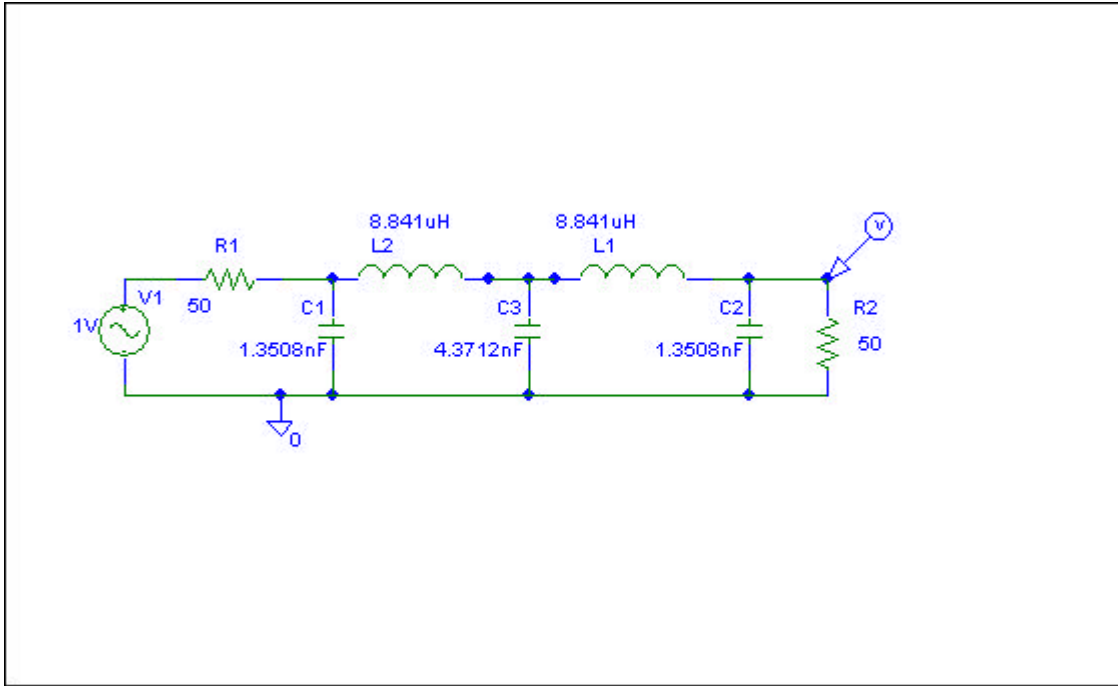
NOTE 3 DIGITAL GND is the same as VME GND.

NOTE 4 The 8 separate ANALOG GNDS are all connected to DIGITAL GND via a series pair of ferrite beads (indicated by inductors in the schematic).

NOTE 5 The beads provide some isolation from channel to channel and impede digital noise from the analog signals.

NOTE 6 The two beads comprising each pair have different values to provide a wide range of frequency isolation.

12 Preliminary Butterworth antialias filter



12 Backplane wiring, connectors, and pinouts

TOWER 1

| | |
|----|----|
| RS | 1 |
| RS | 2 |
| RS | 3 |
| RS | 4 |
| RS | 5 |
| RS | 6 |
| RS | 7 |
| RS | 8 |
| RS | 9 |
| RS | 10 |
| RS | 11 |
| RS | 12 |
| RS | 13 |
| RS | 14 |
| RS | 15 |
| RS | 16 |
| RS | 17 |
| RS | 18 |
| RS | 19 |
| RS | 20 |
| RS | 21 |
| RS | 22 |
| RS | 23 |
| RS | 24 |
| RS | 25 |
| RS | 26 |
| RS | 27 |
| RS | 28 |
| RS | 29 |
| RS | 30 |
| RS | 31 |
| RS | 32 |
| RS | 33 |
| RS | 34 |
| RS | 35 |
| RS | 36 |
| RS | 37 |
| RS | 38 |
| RS | 39 |
| RS | 40 |
| RS | 41 |
| RS | 42 |
| RS | 43 |
| RS | 44 |
| RS | 45 |
| RS | 46 |
| RS | 47 |
| RS | 48 |
| RS | 49 |
| RS | 50 |

Left Slot
Trigger Conditioner

| | | |
|--------------------|------------|-----|
| Q1 LO Threshold + | CH 00 HIGH | A1 |
| Q1 HI Threshold + | CH 01 HIGH | A2 |
| Q2 LO Threshold + | CH 02 HIGH | A3 |
| Q2 HI Threshold + | CH 03 HIGH | A4 |
| Q3 LO Threshold + | CH 04 HIGH | A5 |
| Q3 HI Threshold + | CH 05 HIGH | A6 |
| Q4 LO Threshold + | CH 06 HIGH | A7 |
| Q4 HI Threshold + | CH 07 HIGH | A8 |
| Q5 LO Threshold + | CH 08 HIGH | A9 |
| Q5 HI Threshold + | CH 09 HIGH | A10 |
| Q6 LO Threshold + | CH 10 HIGH | A11 |
| Q6 HI Threshold + | CH 11 HIGH | A12 |
| Q7 LO Threshold + | CH 12 HIGH | A13 |
| Q7 HI Threshold + | CH 13 HIGH | A14 |
| Q8 LO Threshold + | CH 14 HIGH | A15 |
| Q8 HI Threshold + | CH 15 HIGH | A16 |
| Q9 LO Threshold + | CH 16 HIGH | A17 |
| Q9 HI Threshold + | CH 17 HIGH | A18 |
| Q10 LO Threshold + | CH 18 HIGH | A19 |
| Q10 HI Threshold + | CH 19 HIGH | A20 |
| Q11 LO Threshold + | CH 20 HIGH | A21 |
| Q11 HI Threshold + | CH 21 HIGH | A22 |
| Q12 LO Threshold + | CH 22 HIGH | A23 |
| Q12 HI Threshold + | CH 23 HIGH | A24 |
| Q13 LO Threshold + | CH 24 HIGH | A25 |
| Q13 HI Threshold + | CH 25 HIGH | A26 |
| Q14 LO Threshold + | CH 26 HIGH | A27 |
| Q14 HI Threshold + | CH 27 HIGH | A28 |
| Q15 LO Threshold + | CH 28 HIGH | A29 |
| Q15 HI Threshold + | CH 29 HIGH | A30 |
| Q16 LO Threshold + | CH 30 HIGH | A31 |
| Q16 HI Threshold + | CH 31 HIGH | A32 |

| | | |
|--------------------|------------|-----|
| Q4 LO Threshold - | CH 00 HIGH | A1 |
| Q4 HI Threshold - | CH 01 HIGH | A2 |
| Q5 LO Threshold - | CH 02 HIGH | A3 |
| Q5 HI Threshold - | CH 03 HIGH | A4 |
| Q6 LO Threshold - | CH 04 HIGH | A5 |
| Q6 HI Threshold - | CH 05 HIGH | A6 |
| Q7 LO Threshold - | CH 06 HIGH | A7 |
| Q7 HI Threshold - | CH 07 HIGH | A8 |
| Q8 LO Threshold - | CH 08 HIGH | A9 |
| Q8 HI Threshold - | CH 09 HIGH | A10 |
| Q9 LO Threshold - | CH 10 HIGH | A11 |
| Q9 HI Threshold - | CH 11 HIGH | A12 |
| Q10 LO Threshold - | CH 12 HIGH | A13 |
| Q10 HI Threshold - | CH 13 HIGH | A14 |
| Q11 LO Threshold - | CH 14 HIGH | A15 |
| Q11 HI Threshold - | CH 15 HIGH | A16 |
| Q12 LO Threshold - | CH 16 HIGH | A17 |
| Q12 HI Threshold - | CH 17 HIGH | A18 |
| Q13 LO Threshold - | CH 18 HIGH | A19 |
| Q13 HI Threshold - | CH 19 HIGH | A20 |
| Q14 LO Threshold - | CH 20 HIGH | A21 |
| Q14 HI Threshold - | CH 21 HIGH | A22 |
| Q15 LO Threshold - | CH 22 HIGH | A23 |
| Q15 HI Threshold - | CH 23 HIGH | A24 |
| Q16 LO Threshold - | CH 24 HIGH | A25 |
| Q16 HI Threshold - | CH 25 HIGH | A26 |
| Q17 LO Threshold - | CH 26 HIGH | A27 |
| Q17 HI Threshold - | CH 27 HIGH | A28 |
| Q18 LO Threshold - | CH 28 HIGH | A29 |
| Q18 HI Threshold - | CH 29 HIGH | A30 |
| Q19 LO Threshold - | CH 30 HIGH | A31 |
| Q19 HI Threshold - | CH 31 HIGH | A32 |

| | |
|------|-----|
| COMM | B1 |
| COMM | B2 |
| COMM | B3 |
| COMM | B4 |
| COMM | B5 |
| COMM | B6 |
| COMM | B7 |
| COMM | B8 |
| COMM | B9 |
| COMM | B10 |
| COMM | B11 |
| COMM | B12 |
| COMM | B13 |
| COMM | B14 |
| COMM | B15 |
| COMM | B16 |
| COMM | B17 |
| COMM | B18 |
| COMM | B19 |
| COMM | B20 |
| COMM | B21 |
| COMM | B22 |
| COMM | B23 |
| COMM | B24 |
| COMM | B25 |
| COMM | B26 |
| COMM | B27 |
| COMM | B28 |
| COMM | B29 |
| COMM | B30 |
| COMM | B31 |
| COMM | B32 |

| | |
|------|-----|
| COMM | B1 |
| COMM | B2 |
| COMM | B3 |
| COMM | B4 |
| COMM | B5 |
| COMM | B6 |
| COMM | B7 |
| COMM | B8 |
| COMM | B9 |
| COMM | B10 |
| COMM | B11 |
| COMM | B12 |
| COMM | B13 |
| COMM | B14 |
| COMM | B15 |
| COMM | B16 |
| COMM | B17 |
| COMM | B18 |
| COMM | B19 |
| COMM | B20 |
| COMM | B21 |
| COMM | B22 |
| COMM | B23 |
| COMM | B24 |
| COMM | B25 |
| COMM | B26 |
| COMM | B27 |
| COMM | B28 |
| COMM | B29 |
| COMM | B30 |
| COMM | B31 |
| COMM | B32 |

| | | |
|--------------------|-----------|-----|
| Q1 LO Threshold - | CH 00 LOW | C1 |
| Q1 HI Threshold - | CH 01 LOW | C2 |
| Q2 LO Threshold - | CH 02 LOW | C3 |
| Q2 HI Threshold - | CH 03 LOW | C4 |
| Q3 LO Threshold - | CH 04 LOW | C5 |
| Q3 HI Threshold - | CH 05 LOW | C6 |
| Q4 LO Threshold - | CH 06 LOW | C7 |
| Q4 HI Threshold - | CH 07 LOW | C8 |
| Q5 LO Threshold - | CH 08 LOW | C9 |
| Q5 HI Threshold - | CH 09 LOW | C10 |
| Q6 LO Threshold - | CH 10 LOW | C11 |
| Q6 HI Threshold - | CH 11 LOW | C12 |
| Q7 LO Threshold - | CH 12 LOW | C13 |
| Q7 HI Threshold - | CH 13 LOW | C14 |
| Q8 LO Threshold - | CH 14 LOW | C15 |
| Q8 HI Threshold - | CH 15 LOW | C16 |
| Q9 LO Threshold - | CH 16 LOW | C17 |
| Q9 HI Threshold - | CH 17 LOW | C18 |
| Q10 LO Threshold - | CH 18 LOW | C19 |
| Q10 HI Threshold - | CH 19 LOW | C20 |
| Q11 LO Threshold - | CH 20 LOW | C21 |
| Q11 HI Threshold - | CH 21 LOW | C22 |
| Q12 LO Threshold - | CH 22 LOW | C23 |
| Q12 HI Threshold - | CH 23 LOW | C24 |
| Q13 LO Threshold - | CH 24 LOW | C25 |
| Q13 HI Threshold - | CH 25 LOW | C26 |
| Q14 LO Threshold - | CH 26 LOW | C27 |
| Q14 HI Threshold - | CH 27 LOW | C28 |
| Q15 LO Threshold - | CH 28 LOW | C29 |
| Q15 HI Threshold - | CH 29 LOW | C30 |
| Q16 LO Threshold - | CH 30 LOW | C31 |
| Q16 HI Threshold - | CH 31 LOW | C32 |

| | | |
|--------------------|-----------|-----|
| Q4 LO Threshold - | CH 00 LOW | C1 |
| Q4 HI Threshold - | CH 01 LOW | C2 |
| Q5 LO Threshold - | CH 02 LOW | C3 |
| Q5 HI Threshold - | CH 03 LOW | C4 |
| Q6 LO Threshold - | CH 04 LOW | C5 |
| Q6 HI Threshold - | CH 05 LOW | C6 |
| Q7 LO Threshold - | CH 06 LOW | C7 |
| Q7 HI Threshold - | CH 07 LOW | C8 |
| Q8 LO Threshold - | CH 08 LOW | C9 |
| Q8 HI Threshold - | CH 09 LOW | C10 |
| Q9 LO Threshold - | CH 10 LOW | C11 |
| Q9 HI Threshold - | CH 11 LOW | C12 |
| Q10 LO Threshold - | CH 12 LOW | C13 |
| Q10 HI Threshold - | CH 13 LOW | C14 |
| Q11 LO Threshold - | CH 14 LOW | C15 |
| Q11 HI Threshold - | CH 15 LOW | C16 |
| Q12 LO Threshold - | CH 16 LOW | C17 |
| Q12 HI Threshold - | CH 17 LOW | C18 |
| Q13 LO Threshold - | CH 18 LOW | C19 |
| Q13 HI Threshold - | CH 19 LOW | C20 |
| Q14 LO Threshold - | CH 20 LOW | C21 |
| Q14 HI Threshold - | CH 21 LOW | C22 |
| Q15 LO Threshold - | CH 22 LOW | C23 |
| Q15 HI Threshold - | CH 23 LOW | C24 |
| Q16 LO Threshold - | CH 24 LOW | C25 |
| Q16 HI Threshold - | CH 25 LOW | C26 |
| Q17 LO Threshold - | CH 26 LOW | C27 |
| Q17 HI Threshold - | CH 27 LOW | C28 |
| Q18 LO Threshold - | CH 28 LOW | C29 |
| Q18 HI Threshold - | CH 29 LOW | C30 |
| Q19 LO Threshold - | CH 30 LOW | C31 |
| Q19 HI Threshold - | CH 31 LOW | C32 |

P4
Slow ADC #1

P3
Slow ADC #1

| | | |
|----------------|----------|----|
| Q1 HI Irigene | Input 17 | 1 |
| Q1 LO Irigene | Input 1 | 2 |
| Q2 HI Irigene | Input 18 | 3 |
| Q2 LO Irigene | Input 2 | 4 |
| Q3 HI Irigene | Input 19 | 5 |
| Q3 LO Irigene | Input 3 | 6 |
| Q4 HI Irigene | Input 20 | 7 |
| Q4 LO Irigene | Input 4 | 8 |
| Q5 HI Irigene | Input 21 | 9 |
| Q5 LO Irigene | Input 5 | 10 |
| Q6 HI Irigene | Input 22 | 11 |
| Q6 LO Irigene | Input 6 | 12 |
| Q7 HI Irigene | Input 23 | 13 |
| Q7 LO Irigene | Input 7 | 14 |
| Q8 HI Irigene | Input 24 | 15 |
| Q8 LO Irigene | Input 8 | 16 |
| Q9 HI Irigene | Input 25 | 17 |
| Q9 LO Irigene | Input 9 | 18 |
| Q10 HI Irigene | Input 26 | 19 |
| Q10 LO Irigene | Input 10 | 20 |
| Q11 HI Irigene | Input 27 | 21 |
| Q11 LO Irigene | Input 11 | 22 |
| Q12 HI Irigene | Input 28 | 23 |
| Q12 LO Irigene | Input 12 | 24 |
| Q13 HI Irigene | Input 29 | 25 |
| Q13 LO Irigene | Input 13 | 26 |
| Q14 HI Irigene | Input 30 | 27 |
| Q14 LO Irigene | Input 14 | 28 |
| Q15 HI Irigene | Input 31 | 29 |
| Q15 LO Irigene | Input 15 | 30 |
| Q16 HI Irigene | Input 32 | 31 |
| Q16 LO Irigene | Input 16 | 32 |
| GROUND | GROUND | 33 |
| GROUND | GROUND | 34 |

Connector A
Scaler 1

TOWER 2

| | |
|------|----|
| Q11L | 1 |
| Q12L | 2 |
| Q13L | 3 |
| Q14L | 4 |
| Q15L | 5 |
| Q16L | 6 |
| Q17L | 7 |
| Q18L | 8 |
| Q19L | 9 |
| Q20L | 10 |
| Q21L | 11 |
| Q22L | 12 |
| Q23L | 13 |
| Q24L | 14 |
| Q25L | 15 |
| Q26L | 16 |
| Q27L | 17 |
| Q28L | 18 |
| Q29L | 19 |
| Q30L | 20 |
| Q31L | 21 |
| Q32L | 22 |
| Q33L | 23 |
| Q34L | 24 |
| Q35L | 25 |
| Q36L | 26 |
| Q37L | 27 |
| Q38L | 28 |
| Q39L | 29 |
| Q40L | 30 |
| Q41L | 31 |
| Q42L | 32 |
| Q43L | 33 |
| Q44L | 34 |
| Q45L | 35 |
| Q46L | 36 |
| Q47L | 37 |
| Q48L | 38 |
| Q49L | 39 |
| Q50L | 40 |
| Q51L | 41 |
| Q52L | 42 |
| Q53L | 43 |
| Q54L | 44 |
| Q55L | 45 |
| Q56L | 46 |
| Q57L | 47 |
| Q58L | 48 |
| Q59L | 49 |
| Q60L | 50 |

Right Slot Trigger Conditioner

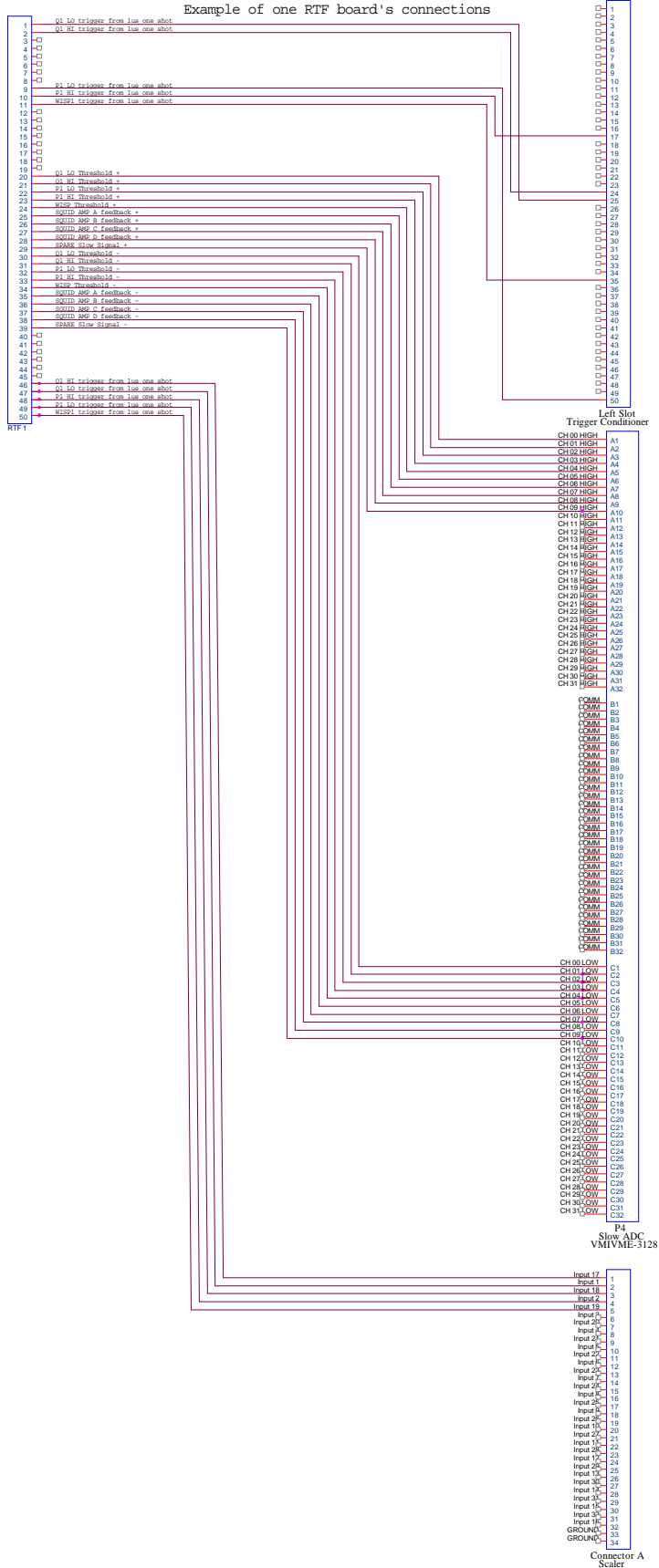
| | | | | | |
|-------------------------|------------|-----|-------------------------|------------|-----|
| Q1 LO Threshold + | CH 00 HIGH | A1 | Q4 LO Threshold + | CH 00 HIGH | A1 |
| Q1 HI Threshold + | CH 01 HIGH | A2 | Q4 HI Threshold + | CH 01 HIGH | A2 |
| Q2 LO Threshold + | CH 02 HIGH | A3 | Q4 HI Threshold - | CH 02 HIGH | A3 |
| Q2 HI Threshold + | CH 03 HIGH | A4 | Q4 HI Threshold + | CH 03 HIGH | A4 |
| WSP2 Threshold + | CH 04 HIGH | A5 | WSP2 Threshold - | CH 04 HIGH | A5 |
| SQUID AMP 1A Feedback + | CH 05 HIGH | A6 | SQUID AMP 1A Feedback - | CH 05 HIGH | A6 |
| SQUID AMP 1B Feedback + | CH 06 HIGH | A7 | SQUID AMP 1B Feedback - | CH 06 HIGH | A7 |
| SQUID AMP 1C Feedback + | CH 07 HIGH | A8 | SQUID AMP 1C Feedback - | CH 07 HIGH | A8 |
| SQUID AMP 1D Feedback + | CH 08 HIGH | A9 | SQUID AMP 1D Feedback - | CH 08 HIGH | A9 |
| SPARK Slow Signal + | CH 09 HIGH | A10 | SPARK Slow Signal - | CH 09 HIGH | A9 |
| Q5 LO Threshold + | CH 10 HIGH | A10 | Q5 LO Threshold - | CH 10 HIGH | A10 |
| Q5 HI Threshold + | CH 11 HIGH | A11 | Q5 HI Threshold + | CH 11 HIGH | A11 |
| Q6 LO Threshold + | CH 12 HIGH | A13 | Q6 LO Threshold - | CH 12 HIGH | A13 |
| Q6 HI Threshold + | CH 13 HIGH | A14 | Q6 HI Threshold - | CH 13 HIGH | A14 |
| WSP2 Threshold + | CH 14 HIGH | A15 | WSP2 Threshold - | CH 14 HIGH | A15 |
| SQUID AMP 2A Feedback + | CH 15 HIGH | A16 | SQUID AMP 2A Feedback - | CH 15 HIGH | A16 |
| SQUID AMP 2B Feedback + | CH 16 HIGH | A17 | SQUID AMP 2B Feedback - | CH 16 HIGH | A17 |
| SQUID AMP 2C Feedback + | CH 17 HIGH | A18 | SQUID AMP 2C Feedback - | CH 17 HIGH | A18 |
| SQUID AMP 2D Feedback + | CH 18 HIGH | A19 | SQUID AMP 2D Feedback - | CH 18 HIGH | A19 |
| SPARK Slow Signal + | CH 19 HIGH | A20 | SPARK Slow Signal - | CH 19 HIGH | A19 |
| Q7 LO Threshold + | CH 20 HIGH | A21 | Q7 LO Threshold - | CH 20 HIGH | A20 |
| Q7 HI Threshold + | CH 21 HIGH | A21 | Q7 HI Threshold + | CH 21 HIGH | A21 |
| Q8 LO Threshold + | CH 22 HIGH | A22 | Q8 LO Threshold - | CH 22 HIGH | A22 |
| Q8 HI Threshold + | CH 23 HIGH | A23 | Q8 HI Threshold - | CH 23 HIGH | A23 |
| WSP2 Threshold + | CH 24 HIGH | A24 | WSP2 Threshold - | CH 24 HIGH | A24 |
| SQUID AMP 3A Feedback + | CH 25 HIGH | A25 | SQUID AMP 3A Feedback - | CH 25 HIGH | A25 |
| SQUID AMP 3B Feedback + | CH 26 HIGH | A26 | SQUID AMP 3B Feedback - | CH 26 HIGH | A26 |
| SQUID AMP 3C Feedback + | CH 27 HIGH | A27 | SQUID AMP 3C Feedback - | CH 27 HIGH | A27 |
| SQUID AMP 3D Feedback + | CH 28 HIGH | A28 | SQUID AMP 3D Feedback - | CH 28 HIGH | A28 |
| SQUID AMP 3E Feedback + | CH 29 HIGH | A29 | SQUID AMP 3E Feedback - | CH 29 HIGH | A29 |
| SQUID AMP 3F Feedback + | CH 30 HIGH | A30 | SQUID AMP 3F Feedback - | CH 30 HIGH | A30 |
| SPARK Slow Signal + | CH 31 HIGH | A31 | SPARK Slow Signal - | CH 31 HIGH | A31 |
| | CH 31 HIGH | A32 | | CH 31 HIGH | A32 |
| COMM B1 | COMM B1 | B1 | COMM B1 | COMM B1 | B1 |
| COMM B2 | COMM B2 | B2 | COMM B2 | COMM B2 | B2 |
| COMM B3 | COMM B3 | B3 | COMM B3 | COMM B3 | B3 |
| COMM B4 | COMM B4 | B4 | COMM B4 | COMM B4 | B4 |
| COMM B5 | COMM B5 | B5 | COMM B5 | COMM B5 | B5 |
| COMM B6 | COMM B6 | B6 | COMM B6 | COMM B6 | B6 |
| COMM B7 | COMM B7 | B7 | COMM B7 | COMM B7 | B7 |
| COMM B8 | COMM B8 | B8 | COMM B8 | COMM B8 | B8 |
| COMM B9 | COMM B9 | B9 | COMM B9 | COMM B9 | B9 |
| COMM B10 | COMM B10 | B10 | COMM B10 | COMM B10 | B10 |
| COMM B11 | COMM B11 | B11 | COMM B11 | COMM B11 | B11 |
| COMM B12 | COMM B12 | B12 | COMM B12 | COMM B12 | B12 |
| COMM B13 | COMM B13 | B13 | COMM B13 | COMM B13 | B13 |
| COMM B14 | COMM B14 | B14 | COMM B14 | COMM B14 | B14 |
| COMM B15 | COMM B15 | B15 | COMM B15 | COMM B15 | B15 |
| COMM B16 | COMM B16 | B16 | COMM B16 | COMM B16 | B16 |
| COMM B17 | COMM B17 | B17 | COMM B17 | COMM B17 | B17 |
| COMM B18 | COMM B18 | B18 | COMM B18 | COMM B18 | B18 |
| COMM B19 | COMM B19 | B19 | COMM B19 | COMM B19 | B19 |
| COMM B20 | COMM B20 | B20 | COMM B20 | COMM B20 | B20 |
| COMM B21 | COMM B21 | B21 | COMM B21 | COMM B21 | B21 |
| COMM B22 | COMM B22 | B22 | COMM B22 | COMM B22 | B22 |
| COMM B23 | COMM B23 | B23 | COMM B23 | COMM B23 | B23 |
| COMM B24 | COMM B24 | B24 | COMM B24 | COMM B24 | B24 |
| COMM B25 | COMM B25 | B25 | COMM B25 | COMM B25 | B25 |
| COMM B26 | COMM B26 | B26 | COMM B26 | COMM B26 | B26 |
| COMM B27 | COMM B27 | B27 | COMM B27 | COMM B27 | B27 |
| COMM B28 | COMM B28 | B28 | COMM B28 | COMM B28 | B28 |
| COMM B29 | COMM B29 | B29 | COMM B29 | COMM B29 | B29 |
| COMM B30 | COMM B30 | B30 | COMM B30 | COMM B30 | B30 |
| COMM B31 | COMM B31 | B31 | COMM B31 | COMM B31 | B31 |
| COMM B32 | COMM B32 | B32 | COMM B32 | COMM B32 | B32 |
| Q1 LO Threshold - | CH 00 LOW | C1 | Q4 LO Threshold - | CH 00 LOW | C1 |
| Q1 HI Threshold - | CH 01 LOW | C2 | Q4 HI Threshold - | CH 01 LOW | C2 |
| Q2 LO Threshold - | CH 02 LOW | C3 | Q4 LO Threshold + | CH 02 LOW | C3 |
| Q2 HI Threshold - | CH 03 LOW | C4 | Q4 HI Threshold - | CH 03 LOW | C4 |
| WSP2 Threshold - | CH 04 LOW | C5 | WSP2 Threshold + | CH 04 LOW | C5 |
| SQUID AMP 1A Feedback - | CH 05 LOW | C6 | SQUID AMP 1A Feedback + | CH 05 LOW | C6 |
| SQUID AMP 1B Feedback - | CH 06 LOW | C7 | SQUID AMP 1B Feedback + | CH 06 LOW | C7 |
| SQUID AMP 1C Feedback - | CH 07 LOW | C8 | SQUID AMP 1C Feedback + | CH 07 LOW | C8 |
| SQUID AMP 1D Feedback - | CH 08 LOW | C9 | SQUID AMP 1D Feedback + | CH 08 LOW | C9 |
| SPARK Slow Signal - | CH 09 LOW | C10 | SPARK Slow Signal + | CH 09 LOW | C9 |
| Q5 LO Threshold - | CH 10 LOW | C11 | Q5 LO Threshold + | CH 10 LOW | C10 |
| Q5 HI Threshold - | CH 11 LOW | C12 | Q5 HI Threshold - | CH 11 LOW | C11 |
| Q6 LO Threshold - | CH 12 LOW | C13 | Q6 LO Threshold + | CH 12 LOW | C12 |
| Q6 HI Threshold - | CH 13 LOW | C14 | Q6 HI Threshold - | CH 13 LOW | C13 |
| WSP2 Threshold - | CH 14 LOW | C15 | WSP2 Threshold + | CH 14 LOW | C14 |
| SQUID AMP 2A Feedback - | CH 15 LOW | C16 | SQUID AMP 2A Feedback + | CH 15 LOW | C15 |
| SQUID AMP 2B Feedback - | CH 16 LOW | C17 | SQUID AMP 2B Feedback + | CH 16 LOW | C16 |
| SQUID AMP 2C Feedback - | CH 17 LOW | C18 | SQUID AMP 2C Feedback + | CH 17 LOW | C17 |
| SQUID AMP 2D Feedback - | CH 18 LOW | C19 | SQUID AMP 2D Feedback + | CH 18 LOW | C18 |
| SPARK Slow Signal - | CH 19 LOW | C20 | SPARK Slow Signal + | CH 19 LOW | C19 |
| Q7 LO Threshold - | CH 20 LOW | C20 | Q7 LO Threshold + | CH 20 LOW | C20 |
| Q7 HI Threshold - | CH 21 LOW | C21 | Q7 HI Threshold - | CH 21 LOW | C21 |
| Q8 LO Threshold - | CH 22 LOW | C22 | Q8 LO Threshold + | CH 22 LOW | C22 |
| Q8 HI Threshold - | CH 23 LOW | C23 | Q8 HI Threshold - | CH 23 LOW | C23 |
| WSP2 Threshold - | CH 24 LOW | C24 | WSP2 Threshold + | CH 24 LOW | C24 |
| SQUID AMP 3A Feedback - | CH 25 LOW | C25 | SQUID AMP 3A Feedback + | CH 25 LOW | C25 |
| SQUID AMP 3B Feedback - | CH 26 LOW | C26 | SQUID AMP 3B Feedback + | CH 26 LOW | C26 |
| SQUID AMP 3C Feedback - | CH 27 LOW | C27 | SQUID AMP 3C Feedback + | CH 27 LOW | C27 |
| SQUID AMP 3D Feedback - | CH 28 LOW | C28 | SQUID AMP 3D Feedback + | CH 28 LOW | C28 |
| SQUID AMP 3E Feedback - | CH 29 LOW | C29 | SQUID AMP 3E Feedback + | CH 29 LOW | C29 |
| SQUID AMP 3F Feedback - | CH 30 LOW | C30 | SQUID AMP 3F Feedback + | CH 30 LOW | C30 |
| SPARK Slow Signal - | CH 31 LOW | C31 | SPARK Slow Signal + | CH 31 LOW | C31 |
| | CH 31 LOW | C32 | | CH 31 LOW | C32 |

P4 Slow ADC #2

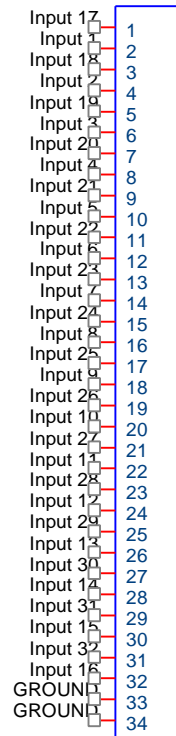
P3 Slow ADC #2

| | | |
|----------------|----------|----|
| Q1 HI Trigger | Input 17 | 1 |
| Q1 LO Trigger | Input 17 | 1 |
| Q2 HI Trigger | Input 18 | 2 |
| Q2 LO Trigger | Input 18 | 2 |
| WSP2 Trigger | Input 19 | 3 |
| Q3 HI Trigger | Input 19 | 3 |
| Q3 LO Trigger | Input 20 | 4 |
| Q4 HI Trigger | Input 20 | 4 |
| Q4 LO Trigger | Input 21 | 5 |
| Q5 HI Trigger | Input 21 | 5 |
| Q5 LO Trigger | Input 22 | 6 |
| WSP2 Trigger | Input 22 | 6 |
| Q6 HI Trigger | Input 23 | 7 |
| Q6 LO Trigger | Input 23 | 7 |
| Q7 HI Trigger | Input 24 | 8 |
| Q7 LO Trigger | Input 24 | 8 |
| Q8 HI Trigger | Input 25 | 9 |
| Q8 LO Trigger | Input 25 | 9 |
| WSP2 Trigger | Input 26 | 10 |
| Q9 HI Trigger | Input 26 | 10 |
| Q9 LO Trigger | Input 27 | 11 |
| Q10 HI Trigger | Input 27 | 11 |
| Q10 LO Trigger | Input 28 | 12 |
| Q11 HI Trigger | Input 28 | 12 |
| Q11 LO Trigger | Input 29 | 13 |
| Q12 HI Trigger | Input 29 | 13 |
| Q12 LO Trigger | Input 30 | 14 |
| Q13 HI Trigger | Input 30 | 14 |
| Q13 LO Trigger | Input 31 | 15 |
| Q14 HI Trigger | Input 31 | 15 |
| Q14 LO Trigger | Input 32 | 16 |
| Q15 HI Trigger | Input 32 | 16 |
| Q15 LO Trigger | Input 33 | 17 |
| Q16 HI Trigger | Input 33 | 17 |
| Q16 LO Trigger | Input 34 | 18 |
| Q17 HI Trigger | Input 34 | 18 |
| Q17 LO Trigger | Input 35 | 19 |
| Q18 HI Trigger | Input 35 | 19 |
| Q18 LO Trigger | Input 36 | 20 |
| Q19 HI Trigger | Input 36 | 20 |
| Q19 LO Trigger | Input 37 | 21 |
| Q20 HI Trigger | Input 37 | 21 |
| Q20 LO Trigger | Input 38 | 22 |
| Q21 HI Trigger | Input 38 | 22 |
| Q21 LO Trigger | Input 39 | 23 |
| Q22 HI Trigger | Input 39 | 23 |
| Q22 LO Trigger | Input 40 | 24 |
| Q23 HI Trigger | Input 40 | 24 |
| Q23 LO Trigger | Input 41 | 25 |
| Q24 HI Trigger | Input 41 | 25 |
| Q24 LO Trigger | Input 42 | 26 |
| Q25 HI Trigger | Input 42 | 26 |
| Q25 LO Trigger | Input 43 | 27 |
| Q26 HI Trigger | Input 43 | 27 |
| Q26 LO Trigger | Input 44 | 28 |
| Q27 HI Trigger | Input 44 | 28 |
| Q27 LO Trigger | Input 45 | 29 |
| Q28 HI Trigger | Input 45 | 29 |
| Q28 LO Trigger | Input 46 | 30 |
| Q29 HI Trigger | Input 46 | 30 |
| Q29 LO Trigger | Input 47 | 31 |
| Q30 HI Trigger | Input 47 | 31 |
| Q30 LO Trigger | Input 48 | 32 |
| Q31 HI Trigger | Input 48 | 32 |
| Q31 LO Trigger | Input 49 | 33 |
| Q32 HI Trigger | Input 49 | 33 |
| Q32 LO Trigger | Input 50 | 34 |
| Q33 HI Trigger | Input 50 | 34 |
| Q33 LO Trigger | Input 51 | 35 |
| Q34 HI Trigger | Input 51 | 35 |
| Q34 LO Trigger | Input 52 | 36 |
| Q35 HI Trigger | Input 52 | 36 |
| Q35 LO Trigger | Input 53 | 37 |
| Q36 HI Trigger | Input 53 | 37 |
| Q36 LO Trigger | Input 54 | 38 |
| Q37 HI Trigger | Input 54 | 38 |
| Q37 LO Trigger | Input 55 | 39 |
| Q38 HI Trigger | Input 55 | 39 |
| Q38 LO Trigger | Input 56 | 40 |
| Q39 HI Trigger | Input 56 | 40 |
| Q39 LO Trigger | Input 57 | 41 |
| Q40 HI Trigger | Input 57 | 41 |
| Q40 LO Trigger | Input 58 | 42 |
| Q41 HI Trigger | Input 58 | 42 |
| Q41 LO Trigger | Input 59 | 43 |
| Q42 HI Trigger | Input 59 | 43 |
| Q42 LO Trigger | Input 60 | 44 |
| Q43 HI Trigger | Input 60 | 44 |
| Q43 LO Trigger | Input 61 | 45 |
| Q44 HI Trigger | Input 61 | 45 |
| Q44 LO Trigger | Input 62 | 46 |
| Q45 HI Trigger | Input 62 | 46 |
| Q45 LO Trigger | Input 63 | 47 |
| Q46 HI Trigger | Input 63 | 47 |
| Q46 LO Trigger | Input 64 | 48 |
| Q47 HI Trigger | Input 64 | 48 |
| Q47 LO Trigger | Input 65 | 49 |
| Q48 HI Trigger | Input 65 | 49 |
| Q48 LO Trigger | Input 66 | 50 |
| Q49 HI Trigger | Input 66 | 50 |
| Q49 LO Trigger | Input 67 | 51 |
| Q50 HI Trigger | Input 67 | 51 |
| Q50 LO Trigger | Input 68 | 52 |
| Q51 HI Trigger | Input 68 | 52 |
| Q51 LO Trigger | Input 69 | 53 |
| Q52 HI Trigger | Input 69 | 53 |
| Q52 LO Trigger | Input 70 | 54 |
| Q53 HI Trigger | Input 70 | 54 |
| Q53 LO Trigger | Input 71 | 55 |
| Q54 HI Trigger | Input 71 | 55 |
| Q54 LO Trigger | Input 72 | 56 |
| Q55 HI Trigger | Input 72 | 56 |
| Q55 LO Trigger | Input 73 | 57 |
| Q56 HI Trigger | Input 73 | 57 |
| Q56 LO Trigger | Input 74 | 58 |
| Q57 HI Trigger | Input 74 | 58 |
| Q57 LO Trigger | Input 75 | 59 |
| Q58 HI Trigger | Input 75 | 59 |
| Q58 LO Trigger | Input 76 | 60 |
| Q59 HI Trigger | Input 76 | 60 |
| Q59 LO Trigger | Input 77 | 61 |
| Q60 HI Trigger | Input 77 | 61 |
| Q60 LO Trigger | Input 78 | 62 |
| Q61 HI Trigger | Input 78 | 62 |
| Q61 LO Trigger | Input 79 | 63 |
| Q62 HI Trigger | Input 79 | 63 |
| Q62 LO Trigger | Input 80 | 64 |
| Q63 HI Trigger | Input 80 | 64 |

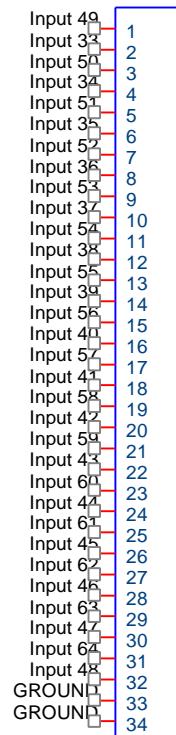
Example of one RTF board's connections



Joerger Model VS64 Scale



Connector A



Connector B

VMIVME-3128 ADC

| | | |
|------|------|-----|
| 00 | HIGH | A1 |
| 01 | HIGH | A2 |
| 02 | HIGH | A3 |
| 03 | HIGH | A4 |
| 04 | HIGH | A5 |
| 05 | HIGH | A6 |
| 06 | HIGH | A7 |
| 07 | HIGH | A8 |
| 08 | HIGH | A9 |
| 09 | HIGH | A10 |
| 10 | HIGH | A11 |
| 11 | HIGH | A12 |
| 12 | HIGH | A13 |
| 13 | HIGH | A14 |
| 14 | HIGH | A15 |
| 15 | HIGH | A16 |
| 16 | HIGH | A17 |
| 17 | HIGH | A18 |
| 18 | HIGH | A19 |
| 19 | HIGH | A20 |
| 20 | HIGH | A21 |
| 21 | HIGH | A22 |
| 22 | HIGH | A23 |
| 23 | HIGH | A24 |
| 24 | HIGH | A25 |
| 25 | HIGH | A26 |
| 26 | HIGH | A27 |
| 27 | HIGH | A28 |
| 28 | HIGH | A29 |
| 29 | HIGH | A30 |
| 30 | HIGH | A31 |
| 31 | HIGH | A32 |
| | | |
| COMM | B1 | |
| COMM | B2 | |
| COMM | B3 | |
| COMM | B4 | |
| COMM | B5 | |
| COMM | B6 | |
| COMM | B7 | |
| COMM | B8 | |
| COMM | B9 | |
| COMM | B10 | |
| COMM | B11 | |
| COMM | B12 | |
| COMM | B13 | |
| COMM | B14 | |
| COMM | B15 | |
| COMM | B16 | |
| COMM | B17 | |
| COMM | B18 | |
| COMM | B19 | |
| COMM | B20 | |
| COMM | B21 | |
| COMM | B22 | |
| COMM | B23 | |
| COMM | B24 | |
| COMM | B25 | |
| COMM | B26 | |
| COMM | B27 | |
| COMM | B28 | |
| COMM | B29 | |
| COMM | B30 | |
| COMM | B31 | |
| COMM | B32 | |
| | | |
| 00 | LOW | C1 |
| 01 | LOW | C2 |
| 02 | LOW | C3 |
| 03 | LOW | C4 |
| 04 | LOW | C5 |
| 05 | LOW | C6 |
| 06 | LOW | C7 |
| 07 | LOW | C8 |
| 08 | LOW | C9 |
| 09 | LOW | C10 |
| 10 | LOW | C11 |
| 11 | LOW | C12 |
| 12 | LOW | C13 |
| 13 | LOW | C14 |
| 14 | LOW | C15 |
| 15 | LOW | C16 |
| 16 | LOW | C17 |
| 17 | LOW | C18 |
| 18 | LOW | C19 |
| 19 | LOW | C20 |
| 20 | LOW | C21 |
| 21 | LOW | C22 |
| 22 | LOW | C23 |
| 23 | LOW | C24 |
| 24 | LOW | C25 |
| 25 | LOW | C26 |
| 26 | LOW | C27 |
| 27 | LOW | C28 |
| 28 | LOW | C29 |
| 29 | LOW | C30 |
| 30 | LOW | C31 |
| 31 | LOW | C32 |

ROW A = High inputs

ROW B = Analog ground on ADC board
Might connect shields here

ROW C = Low inputs

P4 VMIVME-3128

| | | |
|-------|------|-----|
| CH 32 | HIGH | A1 |
| CH 33 | HIGH | A2 |
| CH 34 | HIGH | A3 |
| CH 35 | HIGH | A4 |
| CH 36 | HIGH | A5 |
| CH 37 | HIGH | A6 |
| CH 38 | HIGH | A7 |
| CH 39 | HIGH | A8 |
| CH 40 | HIGH | A9 |
| CH 41 | HIGH | A10 |
| CH 42 | HIGH | A11 |
| CH 43 | HIGH | A12 |
| CH 44 | HIGH | A13 |
| CH 45 | HIGH | A14 |
| CH 46 | HIGH | A15 |
| CH 47 | HIGH | A16 |
| CH 48 | HIGH | A17 |
| CH 49 | HIGH | A18 |
| CH 50 | HIGH | A19 |
| CH 51 | HIGH | A20 |
| CH 52 | HIGH | A21 |
| CH 53 | HIGH | A22 |
| CH 54 | HIGH | A23 |
| CH 55 | HIGH | A24 |
| CH 56 | HIGH | A25 |
| CH 57 | HIGH | A26 |
| CH 58 | HIGH | A27 |
| CH 59 | HIGH | A28 |
| CH 60 | HIGH | A29 |
| CH 61 | HIGH | A30 |
| CH 62 | HIGH | A31 |
| CH 63 | HIGH | A32 |
| | | |
| COMM | B1 | |
| COMM | B2 | |
| COMM | B3 | |
| COMM | B4 | |
| COMM | B5 | |
| COMM | B6 | |
| COMM | B7 | |
| COMM | B8 | |
| COMM | B9 | |
| COMM | B10 | |
| COMM | B11 | |
| COMM | B12 | |
| COMM | B13 | |
| COMM | B14 | |
| COMM | B15 | |
| COMM | B16 | |
| COMM | B17 | |
| COMM | B18 | |
| COMM | B19 | |
| COMM | B20 | |
| COMM | B21 | |
| COMM | B22 | |
| COMM | B23 | |
| COMM | B24 | |
| COMM | B25 | |
| COMM | B26 | |
| COMM | B27 | |
| COMM | B28 | |
| COMM | B29 | |
| COMM | B30 | |
| COMM | B31 | |
| COMM | B32 | |
| | | |
| CH 32 | LOW | C1 |
| CH 33 | LOW | C2 |
| CH 34 | LOW | C3 |
| CH 35 | LOW | C4 |
| CH 36 | LOW | C5 |
| CH 37 | LOW | C6 |
| CH 38 | LOW | C7 |
| CH 39 | LOW | C8 |
| CH 40 | LOW | C9 |
| CH 41 | LOW | C10 |
| CH 42 | LOW | C11 |
| CH 43 | LOW | C12 |
| CH 44 | LOW | C13 |
| CH 45 | LOW | C14 |
| CH 46 | LOW | C15 |
| CH 47 | LOW | C16 |
| CH 48 | LOW | C17 |
| CH 49 | LOW | C18 |
| CH 50 | LOW | C19 |
| CH 51 | LOW | C20 |
| CH 52 | LOW | C21 |
| CH 53 | LOW | C22 |
| CH 54 | LOW | C23 |
| CH 55 | LOW | C24 |
| CH 56 | LOW | C25 |
| CH 57 | LOW | C26 |
| CH 58 | LOW | C27 |
| CH 59 | LOW | C28 |
| CH 60 | LOW | C29 |
| CH 61 | LOW | C30 |
| CH 62 | LOW | C31 |
| CH 63 | LOW | C32 |

DIFFERENTIAL MODE
ROW A = high inputs
ROW C = low inputs

PSEUDODIFFERENTIAL MODE
CH 31 LO and CH 63 LO =
Analog ground
This implies all connected
channels must be referenced
to the same ground.

SINGLE ENDED
This method uses on-board
analog ground
as the input signal
reference

P3 VMIVME-3128