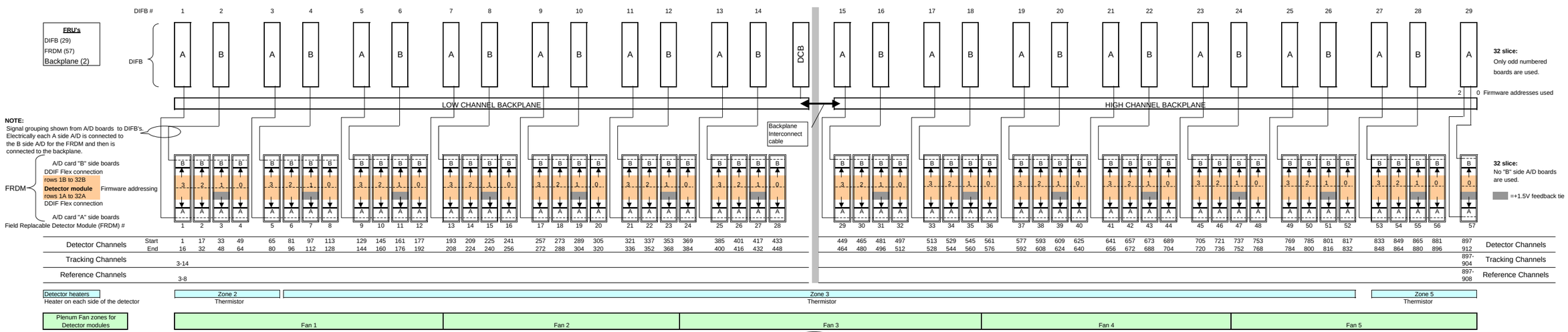
VCT VDAS (Sherlock) DAS/Detector Block diagram

VCT DAS/Detector shown at 12 o'clock
Looking from the Table side of the Gantry

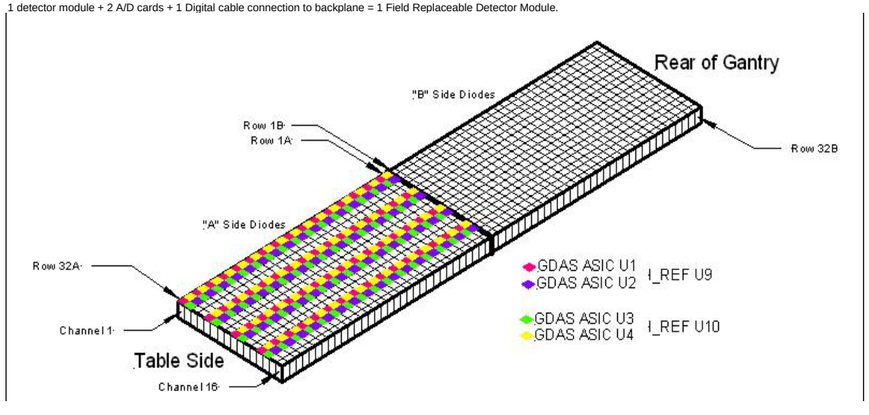


Backplane Signal Mapping (same scale as above diagram)

	LOW CHANNEL BACKPLANE		HIGH CHANNEL BACKPLANE	
CLK (from DCB)	**0** (FRDM 1 - 16, DIFB 1 - 8)	**1** (FRDM 17 - 28, DIFB 9 - 14)	**2** (FRDM 29 - 44, DIFB 15 - 22)	**3** (FRDM 45 - 57, DIFB 23 - 29)
TRIG (from DCB)	**0** (FRDM 1 - 16, DIFB 1 - 8)	**1** (FRDM 17 - 28, DIFB 9 - 14)	**2** (FRDM 29 - 44, DIFB 15 - 22)	**3** (FRDM 45 - 57, DIFB 23 - 29)
IREF (from DCB)	**0** (FRDM 1 - 16, DIFB 1 - 8)	**1** (FRDM 17 - 36, DIFB 9 - 18)	**2** (FRDM 37 - 57, DIFB 19 - 29)	
48V POWER (from fuse board)	**P48V_A (J6)** (FRDM 1 - 16, DIFB 1 - 8)	**P48V_B (J7)** (FRDM 17 - 28, DIFB 9 - 14)	**P48V_C (J8)** (FRDM 29 - 44, DIFB 15 - 22)	**P48V_D (J9)** (FRDM 45 - 57, DIFB 23 - 29)

DCB signals Clk and Trig are split into 4 outputs (0-3) for signal load reduction on the DCB.
DCB signal IREF is split into 3 outputs (0-2) for signal load reduction on the DCB.
48V input power from the 48V fuse board is split into 4 Inputs (A-D) for current handling.

64 slice detector module layout. 16 channel by 64 row. Example also shows a sample cell mapping to ASIC on an A/D card.
8 ASICs per A/D card to cover 1/2 of the Detector module (A or B side). 2 A/D cards cover 1 full detector module.
1 detector module + 2 A/D cards + 1 Digital cable connection to backplane = 1 Field Replaceable Detector Module.



Special information for decoding firmware addressing if seen in error messages:

Error messages will first be referencing the firmware addressing of components but should change to give A/D board # at some point.
Use the mapping above and firmware addressing to decode.

Errors on the FRDM's are reported by the DIFB's. FRDM's are also refered to as Digital Modules.
ASIC errors will be reported by DIFB # and ASIC number. As each DIFB handles 4 A/D cards, it can report errors for FRDM ASICs 1 - 32.
This is decoded by Firmware addressing of the A/D cards.

Example DIFB error:
260132728
DIFB(s) failed to write an ASIC register
Board: 12
ASIC : 13

Reported ASIC #	FRDM FW Address
1 - 8	0
9 - 16	1
17 - 24	2
25 - 32	3

DIFB #12 reported an ASIC error.
ASIC's are on the A/D cards in the FRDM (Digital) modules
Each DIFB talks to 4 A/D boards.
Each A/D board has 8 ASIC's on it.
ASIC number 13 is the 5th ASIC on the 2nd A/D card that DIFB #12 talks to.
DIFB #12 talks to FRM's 21-24 but actually addresses them in reverse physical numbered order of 24-21.
The second addressed FRDM is #23. This is seen in the block diagram above showing firmware address 1 on board number 23.

7.x Functional Interconnects and Block Diagrams	Any copy made from the electronic version shall be considered an uncontrolled copy. Individuals with uncontrolled copies are responsible for ensuring the use of the current version.	Proprietary to GE	Last Updated: March 2009