

J1

MDM-25 PCB Mount Pinout [Socket] Glenair M83513/25-D02CT (Left)	Pin Description	68pin VHDCI Molex PCB Mount Pinout Connects to the SHC68-68-EPM Cable	Conn 0 is J6 & Conn 1 is J7	
			PCB net name	68pin VHDCI Molex pin description
1	Analog Sense	Conn 0:62	analog_sense_a	Analog Sense (optionally available)
2	Analog GND	Conn 0:59	analog_sense_gnd_a	Analog GND (optionally available)
3	NC			
4	Digital SPI bits Return	Conn 0:18	spi_rtn_a	Digital Ground
5	Vdd (+5V), 10 mA Max	Conn 0:11	vdd_+5_10_ma_a	PFI 0/P1.0 (higher current DIO)
6	CSO (SPI bit, YIG setting)	Conn 0:49	cso_spi_a	P0.2
7	MOSI (SPI bit, YIG setting)	Conn 0:17	mosi_spi_a	P0.1
8	CLK (SPI bit, YIG setting)	Conn 0:52	clk_spi_a	P0.0
9	NC			
10	Electronics Board Return (1K Ohm series Resistance to Gnd)	Conn 0:34,66,31,63	ebr1_1k_rtn_a	Analog 0 to 3 low side (SE 8,9,10,11)
11	Electronics Board Return (1K Ohm series Resistance to Gnd)	Conn 0:61,26,58,23	ebr2_1k_rtn_a	Analog 4 to 7 low side (SE 12,13,14,15)
12	Norden Amp #3 current analog sense (mmwave box)	Conn 0:68	na_3_cas_a	Analog input 0 high side (SE 0)
13	Norden Amp #2 current analog sense (mmwave box)	Conn 0:33	na_2_cas_a	Analog input 1 high side (SE 1)
14	Norden Amp #1 current sense analog	Conn 0:65	na_1_cas_a	Analog input 2 high side (SE 2)
15	Analog Mii temperature bit (>2V=good)	Conn 0:30	analog_Mii_temp_good_a	Analog input 3 high side (SE 3)
16	Mii heater current analog sense	Conn 0:28	Mii_heater_I_a	Analog input 4 high side (SE 4)
17	Analog YIG signal level bit (>2V=good)	Conn 0:60	analog_YIG_good_a	Analog input 5 high side (SE 5)
18	YIG RF detection analog sense	Conn 0:25	YIG_analog_sense_a	Analog input 6 high side (SE 6)
19	Electronics Board Return (1K Ohm series Resistance to Gnd)	Conn 1:34,67,66,31,64	ebr3_1k_rtn_a	Analog 8 to 12 low sides (SE 24,25,26,27,28)
20	JPL PA temperature analog sense (mmwave box)	Conn 0:57	JPL_pa_temp_analog_sense_a	Analog input 7 high side (SE 7)
21	Norden PA temp analog sense (mmwave box)	Conn 1:68	Norden_pa_temp_analog_sense_a	Analog input 8 high side (SE 16)
22	YIG base plate temperature analog sense	Conn 1:33	YIG_bp_temp_analog_sense_a	Analog input 9 high side (SE 17)
23	RF base plate temperature analog sense	Conn 1:32	RF_bp_temp_analog_sense_a	Analog input 10 high side (SE 18)
24	Norden Amp #1 temperature analog sense	Conn 1:65	Norden_amp_1_temp_a_sense_a	Analog input 11 high side (SE 19)
25	YIG Temperature analog sense	Conn 1:30	YIG_temp_analog_senes_a	Analog input 12 high side (SE 20)

Note: 4 DO, 13 Diff-AI

J2

MDM-25 PCB Mount Pinout [Socket] Glenair M83513/25-D02CT (right)	Pin Description	68pin VHDCI Molex PCB Mount Pinout Connects to the SHC68-68-EPM Cable		
1	Analog Sense	Conn 1:56	analog_sense_b	Analog Sense (optionally available)
2	Analog GND	Conn 1:9	analog_sense_gnd_b	Analog GND (optionally available)
3	NC			
4	Digital SPI bits Return	Conn 0:53	spi_rtn_b	Digital Ground
5	Vdd (+5V), 10 mA Max	Conn 0:10	vdd_+5_10_ma_b	PFI 1/P1.1 (higher current DIO)
6	CSO (SPI bit, YIG setting)	Conn 0:51	cso_spi_b	P0.5
7	MOSI (SPI bit, YIG setting)	Conn 0:16	mosi_spi_b	P0.6
8	CLK (SPI bit, YIG setting)	Conn 0:48	clk_spi_b	P0.7
9	NC			
10	Electronics Board Return (1K Ohm series Resistance to Gnd)	Conn 1:63,28,61,60	ebr1_1k_rtn_b	Analog 13 to 16 low side (SE 29,30,31,40)
11	Electronics Board Return (1K Ohm series Resistance to Gnd)	Conn 1:25,58,57,21	ebr2_1k_rtn_b	Analog 17 to 20 low side (SE 41,42,43,44)
12	Norden Amp #3 current analog sense (mmwave box)	Conn 1:29	na_3_cas_b	Analog input 13 high side (SE 21)

13	Norden Amp #2 current analog sense (mmwave box)	Conn 1:62	na_2_cas_b	Analog input 14 high side (SE 22)
14	Norden Amp #1 current sense analog	Conn 1:27	na_1_cas_b	Analog input 15 high side (SE 23)
15	Analog Mii temperature bit (>2V=good)	Conn 1:26	analog_Mii_temp_good_b	Analog input 16 high side (SE 32)
16	Mii heater current analog sense	Conn 1:59	Mii_heater_I_b	Analog input 17 high side (SE 33)
17	Analog YIG signal level bit (>2V=good)	Conn 1:24	analog_YIG_good_b	Analog input 18 high side (SE 34)
18	YIG RF detection analog sense	Conn 1:23	YIG_analog_sense_b	Analog input 19 high side (SE 35)
19	Electronics Board Return (1K Ohm series Resistance to Gnd)	Conn 1:54,53,18,51,50	ebr3_1k_rtn_b	Analog 21 to 25 low side (SE 45,46,47,56,57)
20	JPL PA temperature analog sense (mmwave box)	Conn 1:55	JPL_pa_temp_analog_sense_b	Analog input 20 high side (SE 36)
21	Norden PA temp analog sense (mmwave box)	Conn 1:20	Norden_pa_temp_analog_sense_b	Analog input 21 high side (SE 37)
22	YIG base plate temperature analog sense	Conn 1:19	YIG_bp_temp_analog_sense_b	Analog input 22 high side (SE 38)
23	RF base plate temperature analog sense	Conn 1:52	RF_bp_temp_analog_sense_b	Analog input 23 high side (SE 39)
24	Norden Amp #1 temperature analog sense	Conn 1:17	Norden_amp_1_temp_a_sense_b	Analog input 24 high side (SE 48)
25	YIG Temperature analog sense	Conn 1:16	YIG_temp_analog_sense_b	Analog input 25 high side (SE 49)

Note: 4 DO, 13 Diff-AI
Total: 8 DO, 26 AI --> Route spare AIO, DIO to a separate connectors as shown below (2 analog, 1 digital)
PXI-6225: 2AO, 24 DIO, 40 Diff AI (80 single ended)

J4

Alphenol 26 pin HD connector Pinout	Pin Description	68pin VHDCI Molex PCB Mount Pinout Connects to the SHC68-68-EPM Cable		
17BH026SA110 [Socket] Other? (left)	Change as needed			
1	Spare analog channel +	Conn 1:49	analog_in_spare_chan_1+	Analog input 26 high side (SE 50)
2	Spare analog channel -	Conn 1:15	analog_in_spare_chan_1-	Analog input 26 low side (SE 58)
3	Spare analog channel +	Conn 1:14	analog_in_spare_chan_2+	Analog input 27 high side (SE 51)
4	Spare analog channel -	Conn 1:48	analog_in_spare_chan_2-	Analog input 27 low side (SE 59)
5	Spare analog channel +	Conn 1:13	analog_in_spare_chan_3+	Analog input 28 high side (SE 52)
6	Spare analog channel -	Conn 1:47	analog_in_spare_chan_3-	Analog input 28 low side (SE 60)
7	Spare analog channel +	Conn 1:46	analog_in_spare_chan_4+	Analog input 29 high side (SE 53)
8	Spare analog channel -	Conn 1:12	analog_in_spare_chan_4-	Analog input 29 low side (SE 61)
9	Spare analog channel +	Conn 1:11	analog_in_spare_chan_5+	Analog input 30 high side (SE 54)
10	Spare analog channel -	Conn 1:45	analog_in_spare_chan_5-	Analog input 30 low side (SE 62)
11	Spare analog channel +	Conn 1:10	analog_in_spare_chan_6+	Analog input 31 high side (SE 55)
12	Spare analog channel -	Conn 1:44	analog_in_spare_chan_6-	Analog input 31 low side (SE 63)
13	Spare analog channel +	Conn 1:42	analog_in_spare_chan_7+	Analog input 32 high side (SE 64)
14	Spare analog channel -	Conn 1:8	analog_in_spare_chan_7-	Analog input 32 low side (SE 72)
15	AO 0	Conn 0:22	analog_out_0	Analog output 0
16	AO 0 gnd	Conn 0:54	analog_out_0_gnd	Analog output ground
17	Analog input gnd	Conn 1:43	analog_in_0_gnd	Analog input ground

J3

Alphenol 26 pin HD connector Pinout	Pin Description	68pin VHDCI Molex PCB Mount Pinout Connects to the SHC68-68-EPM Cable		
17BH026SA110 [Socket] Other? (middle)	Change as needed			
1	Spare analog channel +	Conn 1:7	analog_in_spare_chan_8+	Analog input 33 high side (SE 65)
2	Spare analog channel -	Conn 1:41	analog_in_spare_chan_8-	Analog input 33 low side (SE 73)
3	Spare analog channel +	Conn 1:6	analog_in_spare_chan_9+	Analog input 34 high side (SE 66)
4	Spare analog channel -	Conn 1:40	analog_in_spare_chan_9-	Analog input 34 low side (SE 74)

5	Spare analog channel +	Conn 1:39	analog_in_spare_chan_10+	Analog input 35 high side (SE 67)
6	Spare analog channel -	Conn 1:5	analog_in_spare_chan_10-	Analog input 35 low side (SE 75)
7	Spare analog channel +	Conn 1:4	analog_in_spare_chan_11+	Analog input 36 high side (SE 68)
8	Spare analog channel -	Conn 1:38	analog_in_spare_chan_11-	Analog input 36 low side (SE 76)
9	Spare analog channel +	Conn 1:3	analog_in_spare_chan_12+	Analog input 37 high side (SE 69)
10	Spare analog channel -	Conn 1:37	analog_in_spare_chan_12-	Analog input 37 low side (SE 77)
11	Spare analog channel +	Conn 1:36	analog_in_spare_chan_13+	Analog input 38 high side (SE 70)
12	Spare analog channel -	Conn 1:2	analog_in_spare_chan_13-	Analog input 38 low side (SE 78)
13	Spare analog channel +	Conn 1:1	analog_in_spare_chan_14+	Analog input 39 high side (SE 71)
14	Spare analog channel -	Conn 1:35	analog_in_spare_chan_14-	Analog input 39 low side (SE 79)
15	AO 1	Conn 0:21	analog_out_1	Analog output 1
16	AO 1 gnd	Conn 0:55	analog_out_1_gnd	Analog output ground
17	Analog input gnd	Conn 1:22	analog_in_1_gnd	Analog input ground

J5

Alphenol 26 pin HD connector Pinout	Pin Description	68pin VHDCI Molex PCB Mount Pinout
17BH026SA110 [Socket] (right)	Change as needed	Connects to the SHC68-68-EPM Cable
1	Spare DIO	Conn 0:47
2	Spare DIO	Conn 0:19
3	Spare DIO	Conn 0:43
4	Spare DIO	Conn 0:42
5	Spare DIO	Conn 0:41
6	Spare DIO	Conn 0:6
7	Spare DIO	Conn 0:5
8	Spare DIO	Conn 0:38
9	DGND	Conn 0:50
10	DGND	Conn 0:15
11	Spare DIO	Conn 0:37
12	Spare DIO	Conn 0:3
13	Spare DIO	Conn 0:45
14	Spare DIO	Conn 0:46
15	Spare DIO	Conn 0:2
16	Spare DIO	Conn 0:40
17	Spare DIO	Conn 0:1
18	Spare DIO	Conn 0:39
19	DGND	Conn 0:12
20	DGND	Conn 0:13

dio_bit_1	P0:3
dio_bit_2	P0:4
dio_bit_3	P1:2
dio_bit_4	P1:3
dio_bit_5	P1:4
dio_bit_6	P1:5
dio_bit_7	P1:6
dio_bit_8	P1:7
dio_gnd_0	DGND
dio_gnd_1	DGND
dio_bit_9	P2:0
dio_bit_10	P2:1
dio_bit_11	P2:2
dio_bit_12	P2:3
dio_bit_13	P2:4
dio_bit_14	P2:5
dio_bit_15	P2:6
dio_bit_16	P2:7
dio_gnd_2	DGND
dio_gnd_3	DGND