

Table 162C-3 MDI connector contact mapping GND clarification

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Supporters

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Background

- For D2.2 comment resolution, there was contribution for an improved MDI connector mapping that was not accepted by the comment resolution group (CRG).
 - https://www.ieee802.org/3/ck/public/21_09/ghiasi_3ck_01_0921.pdf
- One key feedback point on the contribution from the CRG was that the Ground pins should remain in the specification.

QSFP-DD800 Connector (For Reference)

- QSFP-DD800 (see figure). For the TX2n/TX2p pair, note that GND pin #1 is closest to TX2n and GND pin #4 is closest to TX2p. Also, GND pin #4 is closest to TX4n and GND pin #7 is closest to TX4p.

le viewed from bottom

39	████████████████████	GND	1	(Module Side)
40	██████████████████	TX2n	2	
41	██████████████████	TX2p	3	
42	████████████████████	GND	4	
43	██████████████████	TX4n	5	
44	██████████████████	TX4p	6	
45	████████████████████	GND	7	
46	██████████████████	ModSelL	8	
47	██████████████████	ResetL	9	
48	██████████████████	VccRx	10	
49	██████████████████	SCL	11	
50	██████████████████	SDA	12	
51	████████████████████	GND	13	
52	██████████████████	RX3p	14	

OSFP Connector (For Reference)

- For the OSFP TX2n/TX2p pair, note that GND pin #1 is closest to **TX2p** and GND pin #4 is closest to **TX2n**. Also, GND pin #4 goes with **TX4p** and GND pin #7 goes with **TX4n**.

Bottom Side (viewed from bottom)

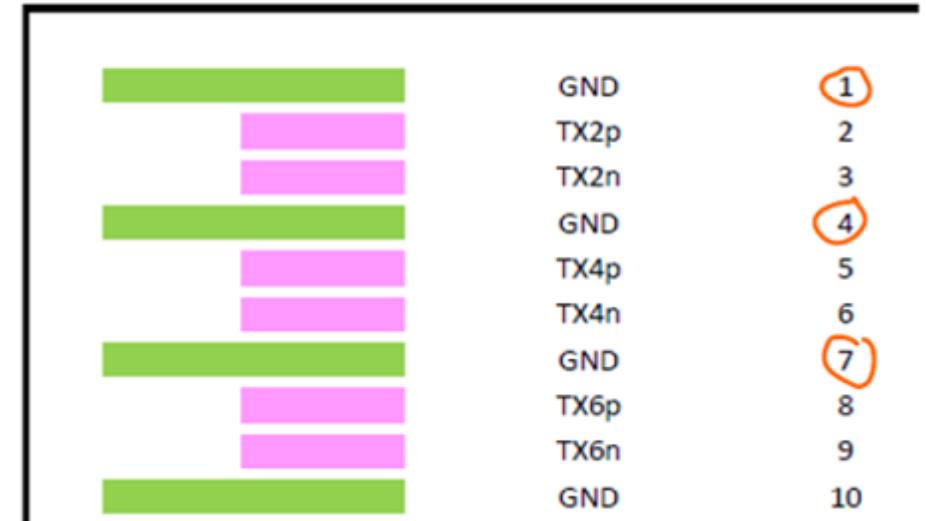


Table 162C-3 MDI Connector Contact Mapping (in D3.0)

- The issue now comes from having both the OSFP and QSFP-DD800 pins in the same table.
 - For the QSFP-DD800 column, GND pin #1 is the physical pin next to SL1n (TX2n in the connector spec) and GND pin #4 is the physical pin next to SL1p (TX2p).
 - However, in the OSFP column, the physical GND pin next to SL1n (TX2n) is pin #4, not pin #1 as shown above, and the physical GND pin next to SL1p (TX2p) is pin #1, not #4.
- Then the table becomes very messy on subsequent rows because the GND pin number can be one of two values in the OSFP case; for example, GND pin #1 is next to SL1p (TX2p) but GND pin #7 is next to SL3n (TX4n).
- A similar issue exists for SFP/SFP-DD/DSFP

Table 162C-3—MDI connector contact mapping

SFP+	SFP-DD	DSFP	QSFP+	OSFP	QSFP-DD800	Connector signal name	Description
—	40	22	1	4	1	GND	Ground
—	39	1	2	3	2	SL1n	Transmitter Inverted Data Input
—	38	2	3	2	3	SL1p	Transmitter Non-Inverted Data Input
—	37	3	4	1	4	GND	Ground
—	—	—	5	6	5	SL3n	Transmitter Inverted Data Input
—	—	—	6	5	6	SL3p	Transmitter Non-Inverted Data Input
—	—	—	7	7	7	GND	Ground

Proposed Solution

- The GND pins are useful information, keep them in the table(s)
- Replace Table 162C-3 with three tables:
 - QSFP/QSFP-DD800 table
 - OSFP table
 - SFP/SFP-DD/DSFP table

QSFP112 & QSFP-DD800

QSFP112	QSFP-DD800	Connector signal name	Description
1	1	GND	Ground
2	2	SL1n	Transmitter Inverted Data Input
3	3	SL1p	Transmitter Non-Inverted Data Input
4	4	GND	Ground
5	5	SL3n	Transmitter Inverted Data Input
6	6	SL3p	Transmitter Non-Inverted Data Input
7	7	GND	Ground
13	13	GND	Ground
14	14	DL2p	Receiver Non-Inverted Data Output
15	15	DL2n	Receiver Inverted Data Output
16	16	GND	Ground
17	17	DL0p	Receiver Non-Inverted Data Output
18	18	DL0n	Receiver Inverted Data Output
19	19	GND	Ground
20	20	GND	Ground
21	21	DL1n	Receiver Inverted Data Output
22	22	DL1p	Receiver Non-Inverted Data Output
23	23	GND	Ground
24	24	DL3n	Receiver Inverted Data Output
25	25	DL3p	Receiver Non-Inverted Data Output
26	26	GND	Ground
32	32	GND	Ground
33	33	SL2p	Transmitter Non-Inverted Data Input
34	34	SL2n	Transmitter Inverted Data Input
35	35	GND	Ground
36	36	SL0p	Transmitter Non-Inverted Data Input
37	37	SL0n	Transmitter Inverted Data Input
38	38	GND	Ground

—	39	GND	Ground
—	40	SL5n	Transmitter Inverted Data Input
—	41	SL5p	Transmitter Non-Inverted Data Input
—	42	GND	Ground
—	43	SL7n	Transmitter Inverted Data Input
—	44	SL7p	Transmitter Non-Inverted Data Input
—	45	GND	Ground
—	51	GND	Ground
—	52	DL6p	Receiver Non-Inverted Data Output
—	53	DL6n	Receiver Inverted Data Output
—	54	GND	Ground
—	55	DL4p	Receiver Non-Inverted Data Output
—	56	DL4n	Receiver Inverted Data Output
—	58	GND	Ground
—	59	DL5n	Receiver Inverted Data Output
—	60	DL5p	Receiver Non-Inverted Data Output
—	61	GND	Ground
—	62	DL7n	Receiver Inverted Data Output
—	63	DL7p	Receiver Non-Inverted Data Output
—	64	GND	Ground
—	70	GND	Ground
—	71	SL6p	Transmitter Non-Inverted Data Input
—	72	SL6n	Transmitter Inverted Data Input
—	73	GND	Ground
—	74	SL4p	Transmitter Non-Inverted Data Input
—	75	SL4n	Transmitter Inverted Data Input

OSFP

OSFP	Connector signal name	Description
1	GND	Ground
2	SL 1p	Transmitter Non-Inverted Data Input
3	SL 1n	Transmitter Inverted Data Input
4	GND	Ground
5	SL 3p	Transmitter Non-Inverted Data Input
6	SL 3n	Transmitter Inverted Data Input
7	GND	Ground
8	SL 5p	Transmitter Non-Inverted Data Input
9	SL 5n	Transmitter Inverted Data Input
10	GND	Ground
11	SL 7p	Transmitter Non-Inverted Data Input
12	SL 7n	Transmitter Inverted Data Input
13	GND	Ground
18	GND	Ground
19	DL 6n	Receiver Inverted Data Output
20	DL 6p	Receiver Non-Inverted Data Output
21	GND	Ground
22	DL 4n	Receiver Inverted Data Output
23	DL 4p	Receiver Non-Inverted Data Output
24	GND	Ground
25	DL 2n	Receiver Inverted Data Output
26	DL 2p	Receiver Non-Inverted Data Output
27	GND	Ground
28	DL 0n	Receiver Inverted Data Output
29	DL 0p	Receiver Non-Inverted Data Output
30	GND	Ground
31	GND	Ground
32	DL 1p	Receiver Non-Inverted Data Output

33	DL 1n	Receiver Inverted Data Output
34	GND	Ground
35	DL 3p	Receiver Non-Inverted Data Output
36	DL 3n	Receiver Inverted Data Output
37	GND	Ground
38	DL 5p	Receiver Non-Inverted Data Output
39	DL 5n	Receiver Inverted Data Output
40	GND	Ground
41	DL 7p	Receiver Non-Inverted Data Output
42	DL 7n	Receiver Inverted Data Output
43	GND	Ground
48	GND	Ground
49	SL 6n	Transmitter Inverted Data Input
50	SL 6p	Transmitter Non-Inverted Data Input
51	GND	Ground
52	SL 4n	Transmitter Inverted Data Input
53	SL 4p	Transmitter Non-Inverted Data Input
54	GND	Ground
55	SL 2n	Transmitter Inverted Data Input
56	SL 2p	Transmitter Non-Inverted Data Input
57	GND	Ground
58	SL 0n	Transmitter Inverted Data Input
59	SL 0p	Transmitter Non-Inverted Data Input
60	GND	Ground

SFP/SFP-DD/DSFP

SFP112	SFP-DD112	DSFP	Connector signal name	Description
11	11	11	GND	Ground
12	12	12	DL0n	Receiver Inverted Data Output
13	13	13	DL0p	Receiver Non-Inverted Data Output
14	14	14	GND	Ground
17	17	17	GND	Ground
18	18	18	SL0p	Transmitter Non-Inverted Data Input
19	19	19	SL0n	Transmitter Inverted Data Input
20	20	20	GND	Ground
—	31	10	GND	Ground
—	32	9	DL1n	Receiver Inverted Data Output
—	33	8	DL1p	Receiver Non-Inverted Data Output
—	34	7	GND	Ground
—	37	3	GND	Ground
—	38	2	SL1p	Transmitter Non-Inverted Data Input
—	39	1	SL1n	Transmitter Inverted Data Input
—	40	22	GND	Ground

Thanks!