



中国科学院高能物理研究所
Institute of High Energy Physics
Chinese Academy of Sciences

TaichuPix-3 test

Ying ZHANG, XiaoXu Zhang

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Status of flex boards

- **Finished test of 16 flex boards**
 - Nine 4-layer flex with two chips work normally
 - Five 2-layer flex bonding with one chip work normally
- **Verified two flex connected to one interposer board working**

Results of 4-layer flex boards

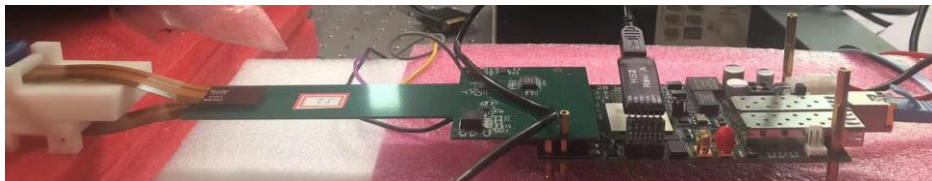
Flex num.	Chip pos.	Chip num.	Status	Min. ITHR
V1p4-A	U9, U10	W1R8, W2R32	Short	
V1p4-B	U9, U10	W1R7, W2R31	Work	U10: 64; U9: 96; U9&U10: 96
V1p4-C	U9, U10	W1R3, W1R2	Work	U10: 64; U9: 96; U9&U10: 96.
V1p4-D	U9, U10	W1R5, W1R4	Work	U10: 96; U9: 64; U9&U10: 96.
V1p4-E	U9, U10	W1R10, W1R9	Work	U10: 48; U9: 24; U9&U10: 64.
V1p4-F	U9, U10	W1R18, W1R16	Work	U10: 64; U9: 32; U9&U10: 96.
V1p4-Q	U1, U2	W1R14, W1R11	Work	U1: 48; U2: 32; U1&U2: 64&48.
V1p4-R	U1, U2	W1R22, W1R21	Work	U1: 32; U2: 32; U1&U2: 96&64.
V1p4-S	U1, U2	W1R26, W1R24	Work	U1: 32; U2: 64; U1&U2: 96&64.
V1p4-T	U1, U2	W1R28, W1R27	Work	U1: 32; U2: 32; U1&U2: 64&64.

Results of 2-layer flex boards

Flex num.	Chip pos.	Chip num.	Status	Min. ITHR
V1p3-E	U4, U7		Current normal, no output	
V1p3-F	U4, U7		U7 work, power higher U4 short	U7: 160
V1p3-G	U5		Work	U5: 96
V1p3-H	U1, U9, U10		U9, U10 work in beginning, no output now; U1 work	U1:128
V1p3-I	U1, U2, U10		U10 work U1, U2 work	U10: 96 U1/U2:96, U1&U2: 176&160
V1p3-K	U1, U10		U10 work U1 work	U10: 96 U1:96, with ghost

Test of two flex working simultaneously (1)

- FlexV1p4F (U9 & U10), FlexV1p4T (U1 & U2) connected to one interposer board
 - Basically work normally in the OCT mode



U1 & U10 in OCT mode

data x										
3340x10 double										
	1	2	3	4	5	6	7	8	9	10
1	1	22	511	323	0	1	29	131	15	1
2	1	13	128	323	0	1	32	91	14	10
3	1	22	0	323	0	1	29	131	15	1
4	1	13	256	323	0	1	32	91	14	10
5	1	22	128	323	0	1	29	155	14	1
6	1	22	128	323	0	1	29	155	14	1
7	1	43	256	323	0	1	29	155	14	1
8	1	43	256	323	0	1	29	155	14	1
9	1	43	511	323	0	1	29	155	14	1
10	1	43	511	323	0	1	29	155	14	1
11	1	64	0	323	0	1	29	131	15	1
12	1	55	256	323	0	1	32	91	14	10
13	1	64	128	323	0	1	29	131	15	1
14	1	55	511	323	0	1	32	91	14	10
15	1	64	256	323	0	1	29	155	14	1
16	1	64	256	323	0	1	29	155	14	1
17	1	85	511	323	0	1	29	155	14	1
18	1	85	511	323	0	1	29	155	14	1
19	1	85	0	323	0	1	29	155	14	1
20	1	85	0	323	0	1	29	155	14	1
21	1	85	128	323	0	1	29	131	15	1
22	1	97	511	323	0	1	32	91	14	10
23	1	106	256	323	0	1	29	131	15	1
24	1	97	0	323	0	1	32	91	14	10
25	1	106	511	323	0	1	29	155	14	1

Chip ID

data x										
3340x10 double										
	1	2	3	4	5	6	7	8	9	10
1	1	158	256	323	0	1	97	23	13	10
2	1	157	0	323	0	1	94	63	6	1
3	1	158	511	323	0	1	97	23	13	10
4	1	157	128	323	0	1	94	63	6	1
5	1	179	0	323	0	1	97	23	13	10
6	1	178	256	323	0	1	94	63	6	1
7	1	179	128	323	0	1	97	23	13	10
8	1	178	511	323	0	1	94	63	6	1
9	1	179	256	323	0	1	97	23	13	10
10	1	199	0	323	0	1	94	63	6	1
11	1	200	511	323	0	1	97	23	13	10
12	1	199	128	323	0	1	94	63	6	1
13	1	200	0	323	0	1	97	23	13	10
14	1	199	256	323	0	1	94	63	6	1
15	1	221	128	323	0	1	97	23	13	10
16	1	220	511	323	0	1	94	63	6	1
17	1	221	256	323	0	1	97	23	13	10
18	1	220	0	323	0	1	94	63	6	1
19	1	221	511	323	0	1	97	23	13	10
20	1	241	128	323	0	1	94	63	6	1
21	1	242	0	323	0	1	97	23	13	10
22	1	241	256	323	0	1	94	63	6	1
23	1	242	128	323	0	1	97	23	13	10
24	1	241	511	323	0	1	94	63	6	1
25	1	242	256	323	0	1	97	23	13	10

Chip ID

Test of two flex working simultaneously (2)

- FlexV1p4F (U9 & U10), FlexV1p4T (U1 & U2) connected to one interposer board
 - Basically work normally in the OCT mode

U1 & U2 & U9 & U10 in OCT mode

Chip ID

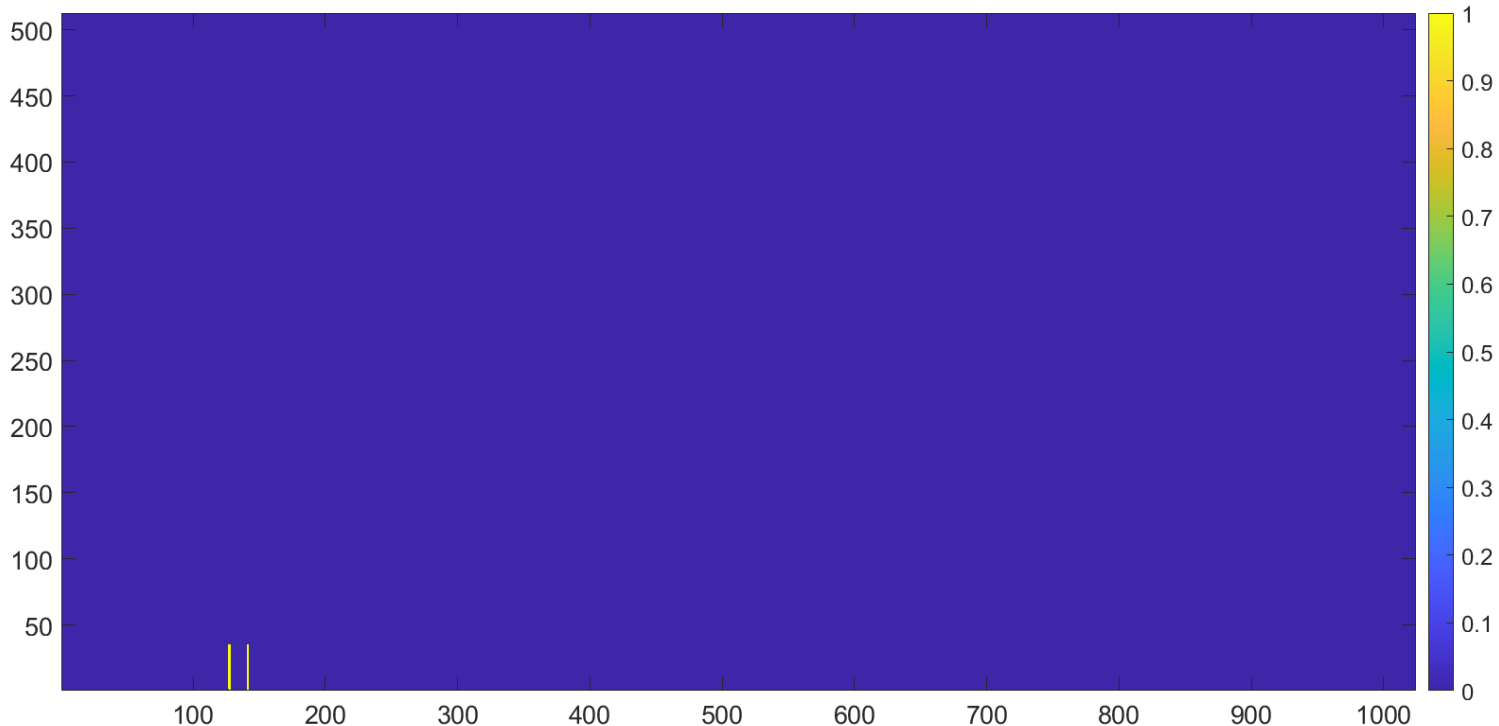
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	1	2	3	4	5	6	7	8	9	10
1	1	237	256	323	0	3	69	193	4	2
2	1	237	256	323	0	3	69	193	4	2
3	1	222	256	323	0	3	72	150	6	10
4	1	237	511	323	0	3	69	214	6	1
5	1	237	511	323	0	3	69	193	4	2
6	1	243	511	323	0	3	72	129	4	10
7	1	243	511	323	0	3	72	129	4	10
8	1	243	0	323	0	3	72	150	6	9
9	1	237	0	323	0	3	69	193	4	1
10	1	237	0	323	0	3	69	214	6	2
11	1	237	0	323	0	3	69	214	6	2
12	1	2	128	323	0	3	69	193	4	1
13	1	8	128	323	0	3	72	150	6	10
14	1	2	128	323	0	3	69	214	6	2
15	1	2	128	323	0	3	69	214	6	2
16	1	2	256	323	0	3	69	193	4	1
17	1	8	256	323	0	3	72	150	6	10
18	1	2	256	323	0	3	72	150	6	2
19	1	2	256	323	0	3	72	150	6	2
20	1	8	511	323	0	3	72	150	6	9
21	1	23	511	323	0	3	69	193	4	2
22	1	23	511	323	0	3	69	193	4	2
23	1	8	511	323	0	3	72	150	6	10
24	1	23	0	323	0	3	69	214	6	1
25	1	23	0	323	0	3	69	193	4	2
26	1	29	0	323	0	3	72	129	4	10

Test of two flex working simultaneously (3)

- FlexV1p4F (U9 & U10), FlexV1p4T (U1 & U2) connected to one interposer board
 - Basically work normally in APULSE test

Config U1 & U2 & U9 & U10 @ ITHR = 128



Two chips on different flex boards response to APULSE

Setting of ITHR for the flex

- Flex with one chip, ITHR can be set to 32-96, depending on chips
- Flex with two chips, ITHR can be set to be same or 32 more than the worst one
- Two flex boards with four chips, ITHR can be set to 32 more than one flex with two chips