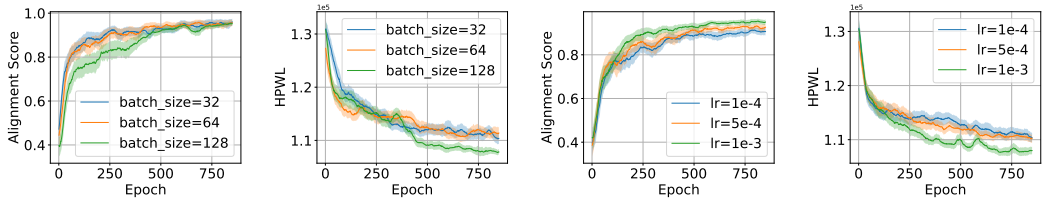
Table 1: Ablation study of multi-modality and the comparison with same modality input.

Method		MaskPlace	Ours	GraphPlace	DeepPlace	Ours	Ours			
Modality	Vision	✓	✓	✓	✓	✓		✓	No Canvas	✓
	Graph			✓	✓	✓	✓		✓	✓
	Sequence						✓	✓	✓	✓
Metric	Alignment	0.575	**0.847**	0.279	0.332	**0.860**	0.301	0.874	0.744	**0.961**
	HPWL	189,100	**187,026**	209,940	223,359	**186,005**	221,602	185,079	186,732	**176,639**

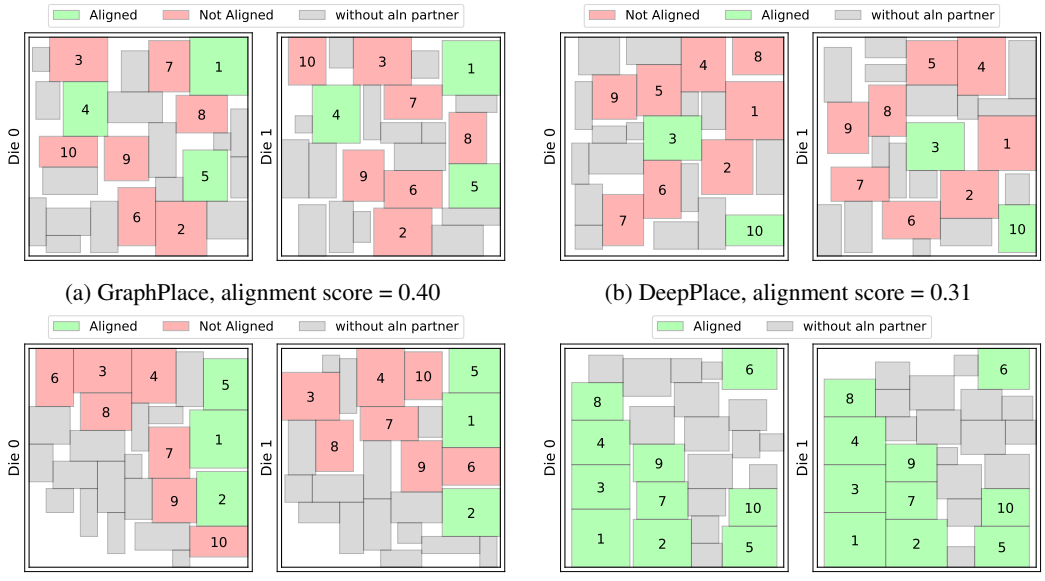
Table 2: Experiments on larger circuits. Scale of each circuit is also demonstrated.

Circuit	adaptec2			adaptec3			n300_dup3		
	#Block	#Net	#I/O Port	#Block	#Net	#I/O Port	#Block	#Net	#I/O Port
	566	860	0	723	1,154	0	900	5,679	1,707
Method/Metric	Alignment	HPWL	Overlap	Alignment	HPWL	Overlap	Alignment	HPWL	Overlap
Wiremask-BBO	0.285	2,956,546	0.000	0.365	5,000,467	0.000	0.391	2,389,902	0.000
Ours	**0.839**	**2,911,438**	**0.000**	**0.817**	**4,758,283**	**0.000**	**0.928**	**2,305,070**	**0.000**



(a) Alignment v.s. bs (b) HPWL v.s. bs (c) Alignment v.s. lr (d) HPWL v.s. lr

Figure 1: Stability and sensitivity with hyper-parameters. bs: mini-batch size, lr: learning rate.



(a) GraphPlace, alignment score = 0.40 (b) DeepPlace, alignment score = 0.31

(c) Wiremask-BBO, alignment score = 0.35 (d) Ours, alignment score = 0.98

Figure 2: Visualization of cross-die block alignment. Two blocks with the same index forms an alignment pair. For an alignment pair with block i, j, we calculate individual alignment score $\mathrm{aln}(i, j)$ according to Eq. 1. Green means these two blocks are aligned ($\mathrm{aln}(i, j) \geq 0.5$) while red means not aligned ($\mathrm{aln}(i, j) < 0.5$). Total alignment score is calculated according to Alg. 3 in Appendix G.1. It demonstrates that our method achieves much better alignment score than other baselines.