Evaluation on Real-world Software Product Line Benchmarks

This appendix presents the experimental results of *FastFMC* and its competitors on the real-world software product line benchmarks, covering both the offline and online phases.

TABLE I: Comparative results between *FastFMC* and its Reuse-DNNF-based competitors in the offline phase

	FastFMC	*ddnnife*	*d4-query*	*query-ddnnf*
Large-scale benchmark set:				
#suc_{off} ($\mu \pm \sigma$)	**128 ± 0.0**	127 ± 0.0	126 ± 0.0	86 ± 0.8
P2T_{off}	**7.4**	43.1	61.6	1,186.3
#win_{off}	- -	119	122	128
Complete benchmark set:				
#suc_{off} ($\mu \pm \sigma$)	**151 ± 0.0**	150 ± 0.0	149 ± 0.0	104 ± 0.8
P2T_{off}	**6.3**	38.5	52.2	1,101.2
#win_{off}	- -	128	141	151

* $\mu \pm \sigma$ denotes the mean and standard deviation over 10 independent runs.

TABLE II: Comparative efficiency of *FastFMC* and its Reuse-DNNF-based competitors in the offline phase

		FastFMC	*ddnnife*	*d4-query*
Large-scale (#$\text{suc}_{\text{eff}} = 126$)	time_{off}	**1.6**	13.8	10.9
Complete (#$\text{suc}_{\text{eff}} = 149$)	time_{off}	**1.3**	11.7	8.6

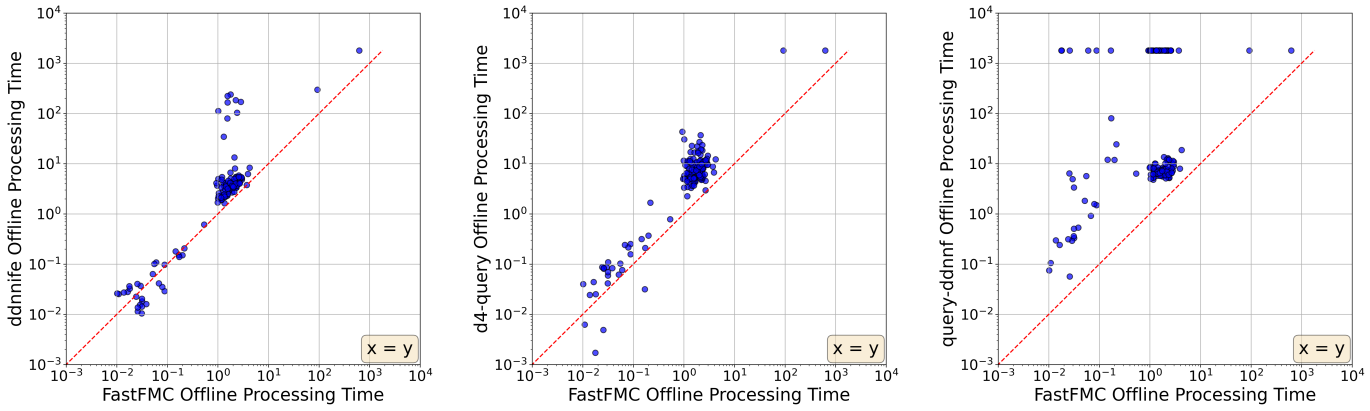
TABLE III: Comparative results between *FastFMC* and all its competitors in the online phase

	FastFMC	*ddnnife*	*d4-query*	*query-ddnnf*	*Ganak*	*sharpSAT*	*countAntom*
Large-scale benchmark set:							
#suc_{on} ($\mu \pm \sigma$)	**128** ± 0.0	127 ± 0.0	126 ± 0.0	85 ± 0.8	121 ± 0.9	122 ± 0.7	109 ± 1.1
P2T_{on}	**1.2**	39.5	64.1	1,213.6	956.2	671.3	1,173.5
#win_{on}	–	119	128	128	128	128	128
Complete benchmark set:							
#suc_{on} ($\mu \pm \sigma$)	**151** ± 0.0	150 ± 0.0	149 ± 0.0	104 ± 0.8	144 ± 0.9	145 ± 1.0	131 ± 1.1
P2T_{on}	**1.0**	25.2	54.4	1,124.1	835.1	616.6	975.1
#win_{on}	–	137	151	151	151	151	151

* $\mu \pm \sigma$ denotes the mean and standard deviation over 10 independent runs.

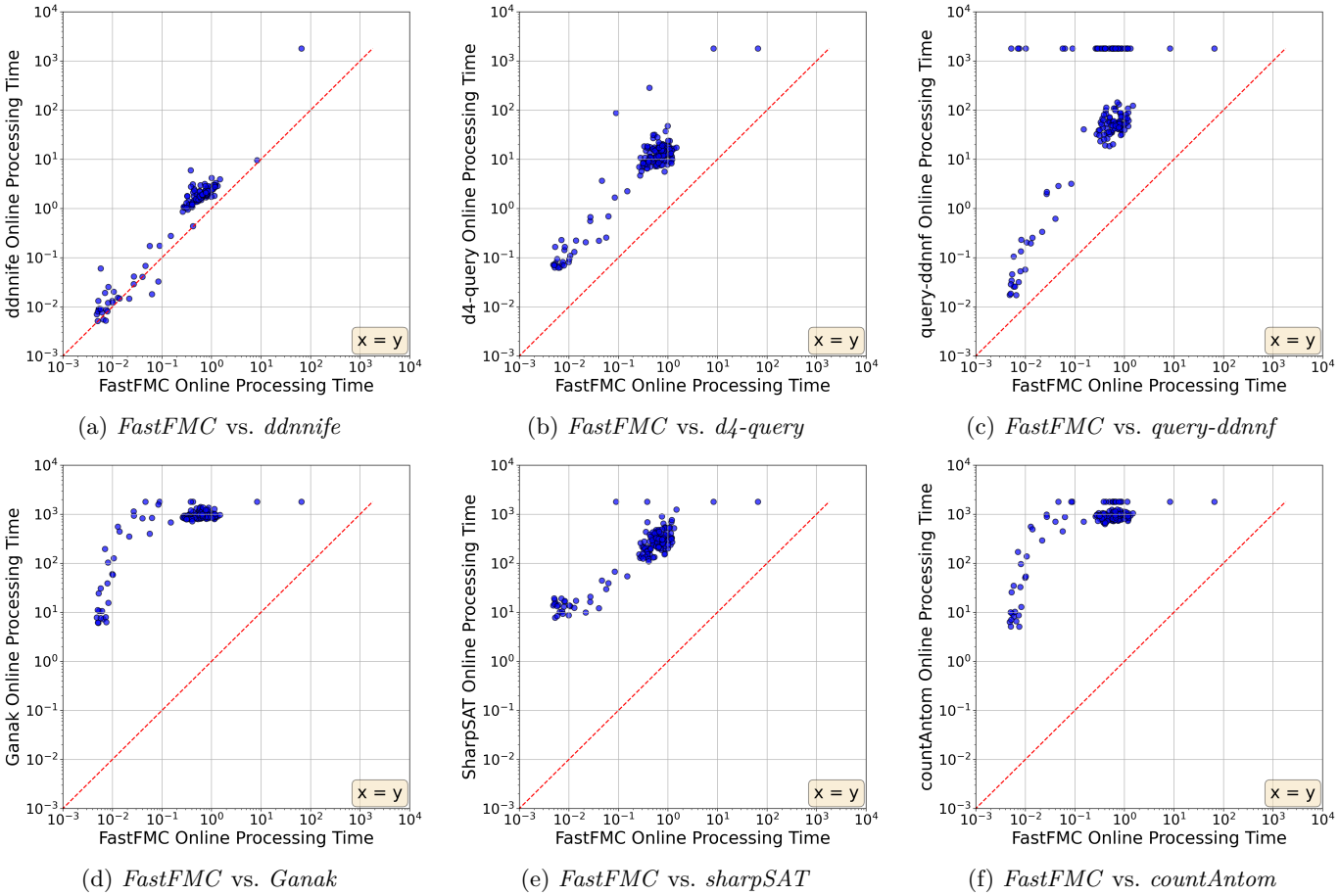
TABLE IV: Comparative efficiency between *FastFMC* and its competitors in the online phase

		FastFMC	*ddnnife*	*d4-query*
Large-scale (#$\text{suc}_{\text{eff}} = 18$)	time_{on}	**0.6**	2.9	15.7
Complete (#$\text{suc}_{\text{eff}} = 32$)	time_{on}	**0.5**	2.1	13.3



(a) *FastFMC* vs. *ddnnife* (b) *FastFMC* vs. *d4-query* (c) *FastFMC* vs. *query-ddnnf*

Fig. 1: Scatter plot comparison of offline performance for *FastFMC* and its state-of-the-art Reuse-DNNF-based competitors



(a) *FastFMC* vs. *ddnnife* (b) *FastFMC* vs. *d4-query* (c) *FastFMC* vs. *query-ddnnf*

(d) *FastFMC* vs. *Ganak* (e) *FastFMC* vs. *sharpSAT* (f) *FastFMC* vs. *countAntom*

Fig. 2: Scatter plot comparison of online performance for *FastFMC* and all its competitors