

Supplemental File for “Benchmarking MOEAs for Multi- and Many-objective Optimization Using an Unbounded External Archive”

Table S.1: Websites that we downloaded the source codes of the corresponding MOEAs.

MOEA	Download site
SPEA2, NSGA-II, IBEA _{HD} , MOEA/D-09, and MOEA/D-DRA	jMetal 4.5 ¹
RVEA and I-DBEA	MOEA Framework 2.11 ²
MOEA/D-STM and MOEA/DD	Ke Li’s website ³
NSGA-III, θ -DEA, MOEA/D-DU, and EFR-RR	Yao’s website ⁴
HypE	PISA ⁵
GrEA, SPEA2+SDE, and BiGE	Miqing Li’s website ⁶
MOMBI-II	Gómez’s website ⁷
VaEA	Yi’s website ⁸

¹ <http://jmetal.sourceforge.net/>

² <http://moeaframework.org/index.html>

³ <http://www.cs.bham.ac.uk/~likw/publications.html>

⁴ http://www.cs.bham.ac.uk/~xin/journal_papers.html

⁵ <http://www.tik.ee.ethz.ch/sop/download/supplementary/hype/>

⁶ <http://www.cs.bham.ac.uk/~limx/>

⁷ <https://www.cs.cinvestav.mx/~EVOCINV/software/MOMBI-II/MOMBI-II.html>

⁸ <https://www.researchgate.net/profile/Xiang-Yi9/publications>

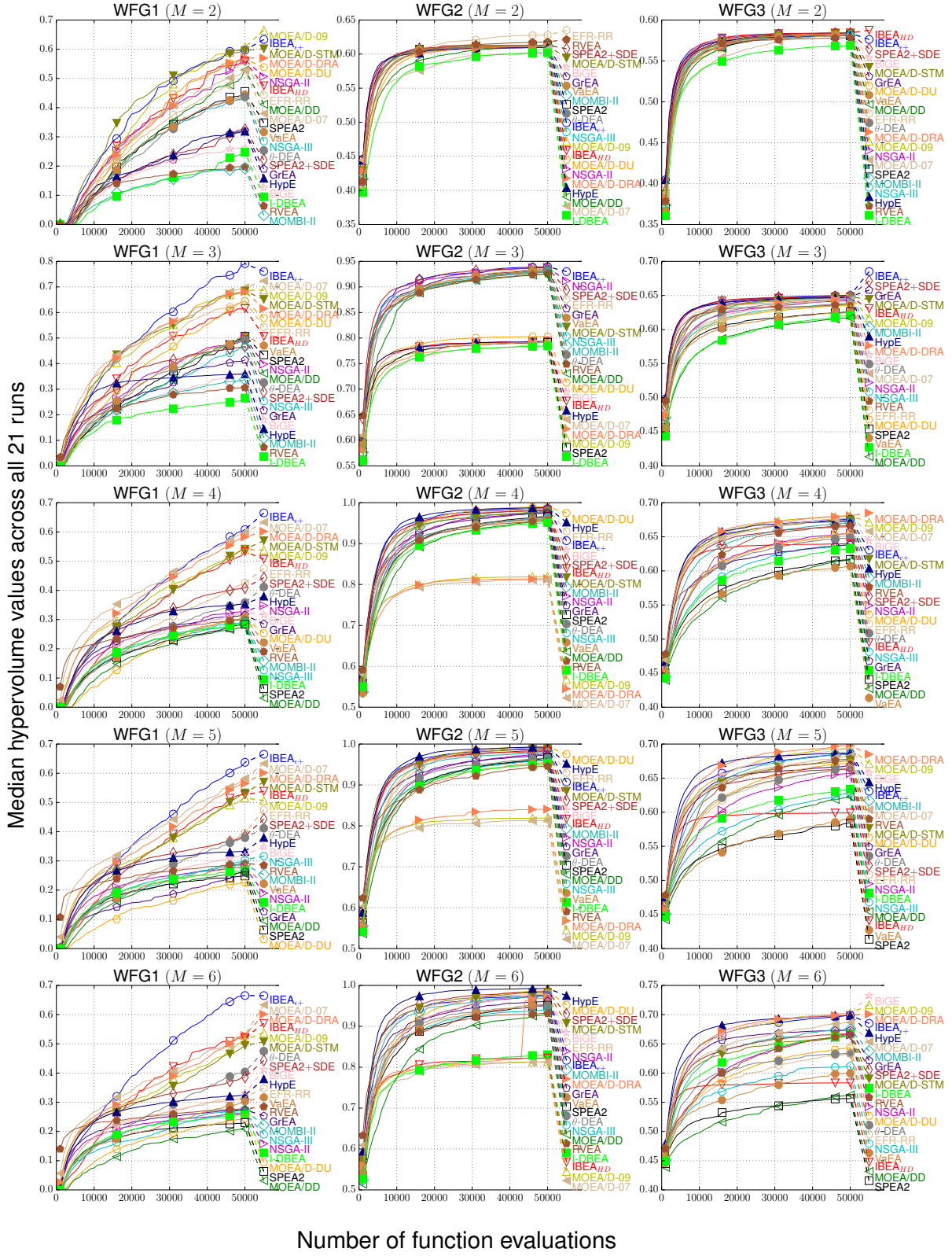


Figure S.1: Convergence performance of the 21 MOEAs on the normalized WFG1, WFG2, and WFG3 functions ($M \in \{2, 3, 4, 5, 6\}$).

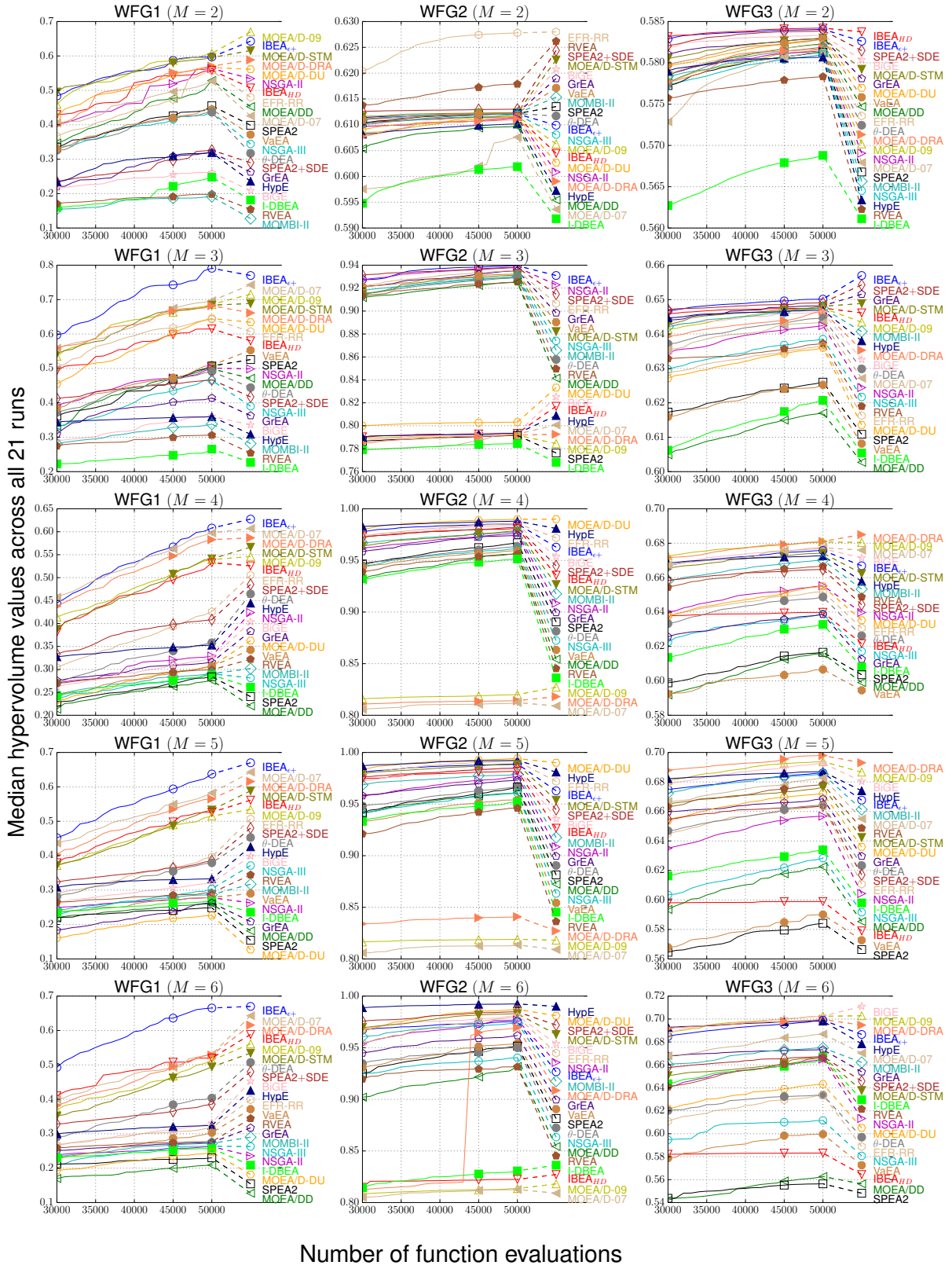


Figure S.4: Convergence performance of the 21 MOEAs on the normalized WFG1, WFG2, and WFG3 functions ($M \in \{2, 3, 4, 5, 6\}$) for FEvals $\in \{3 \times 10^4, 3.1 \times 10^4, \dots, 5 \times 10^4\}$.

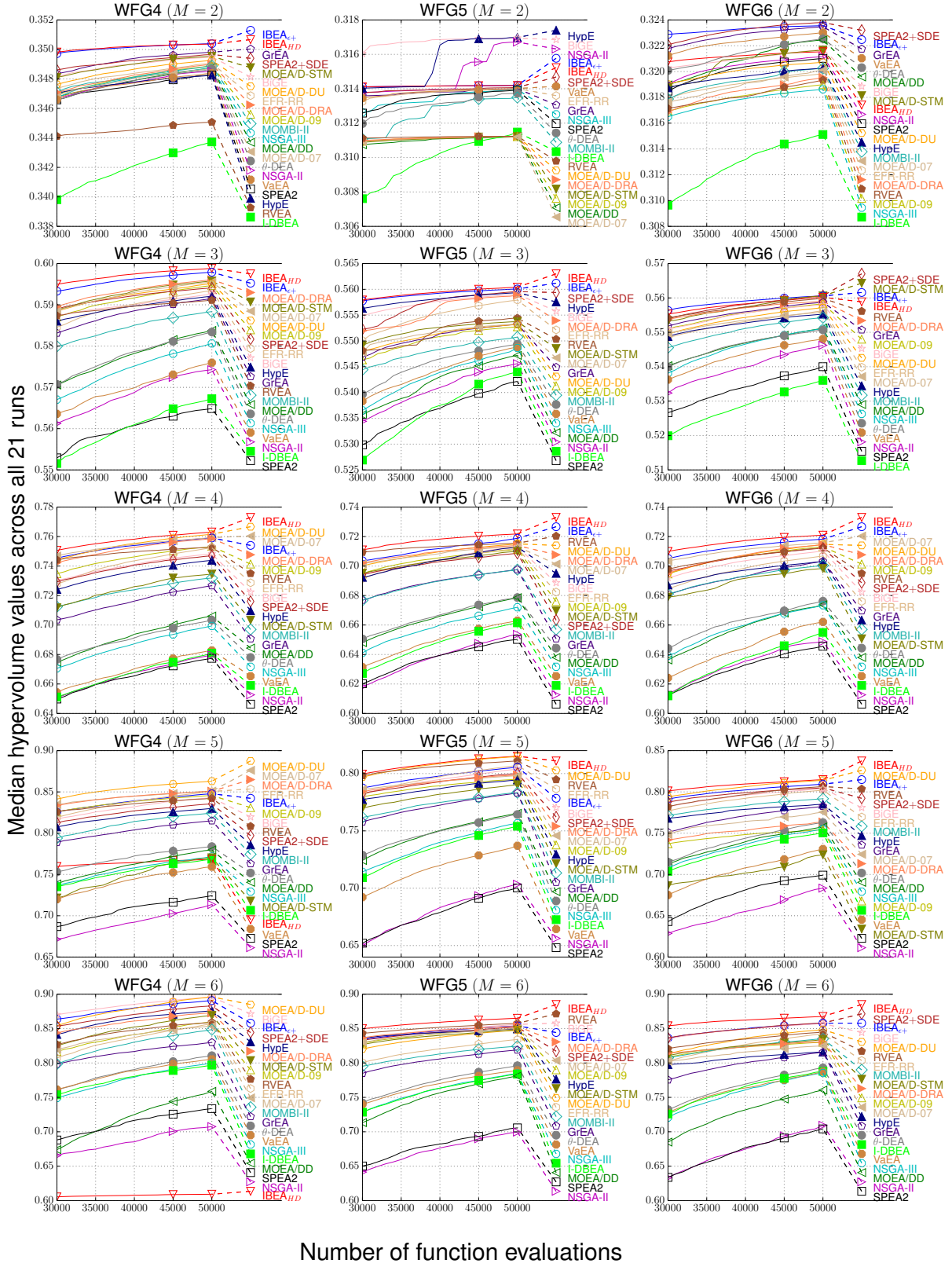


Figure S.5: Convergence performance of the 21 MOEAs on the normalized WFG4, WFG5, and WFG6 functions ($M \in \{2, 3, 4, 5, 6\}$) for FEvals $\in \{3 \times 10^4, 3.1 \times 10^4, \dots, 5 \times 10^4\}$.

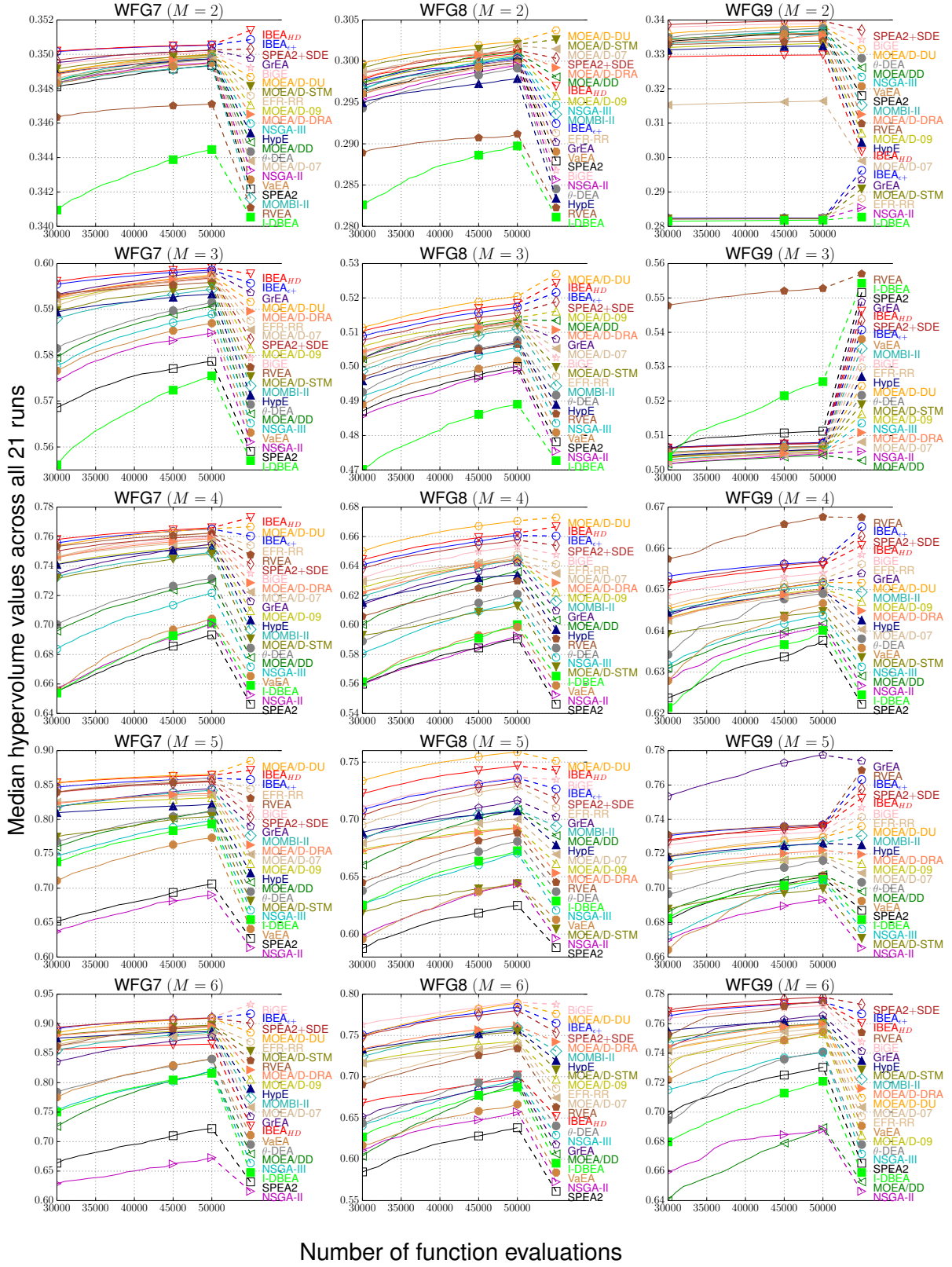


Figure S.6: Convergence performance of the 21 MOEAs on the normalized WFG7, WFG8, and WFG9 functions ($M \in \{2, 3, 4, 5, 6\}$) for FEvals $\in \{3 \times 10^4, 3.1 \times 10^4, \dots, 5 \times 10^4\}$.

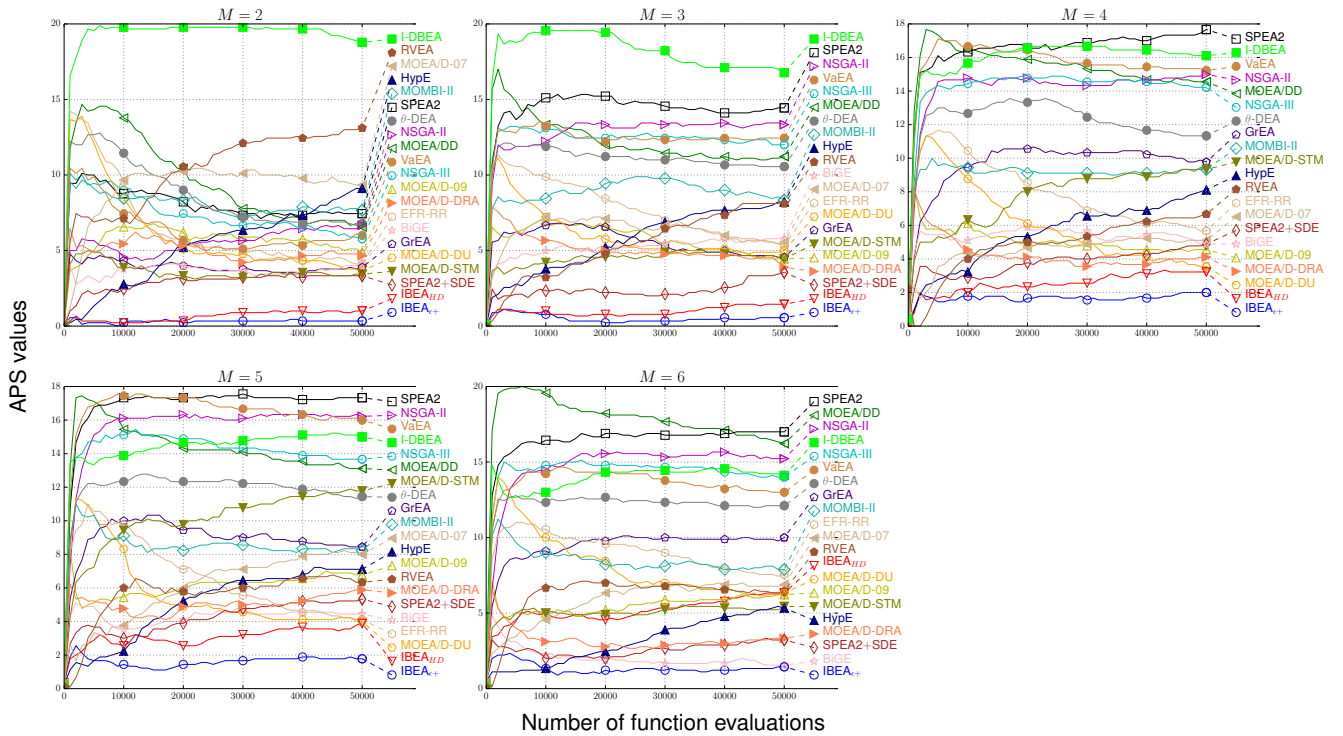


Figure S.7: Results for the 21 MOEAs based on the APS for all WFG functions with $M \in \{2, 3, 4, 5, 6\}$ (lower is better).