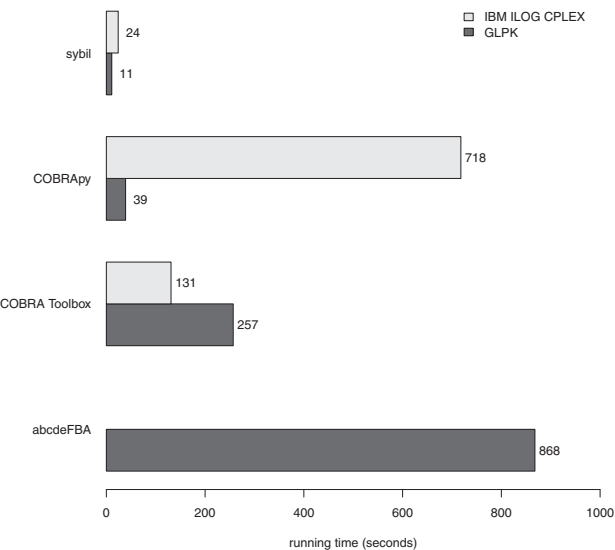
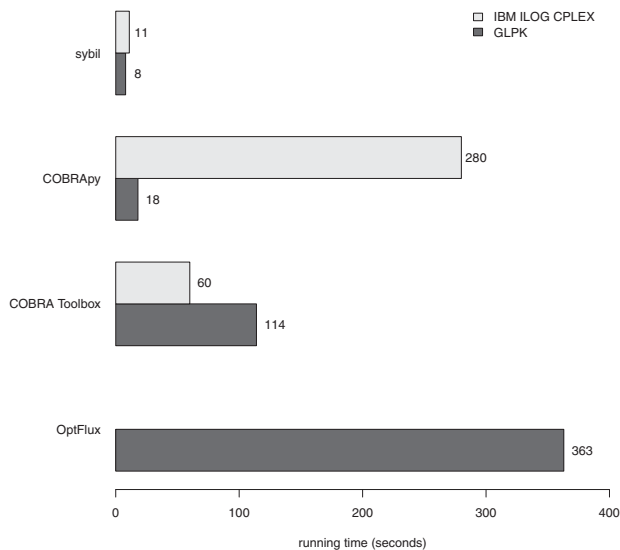
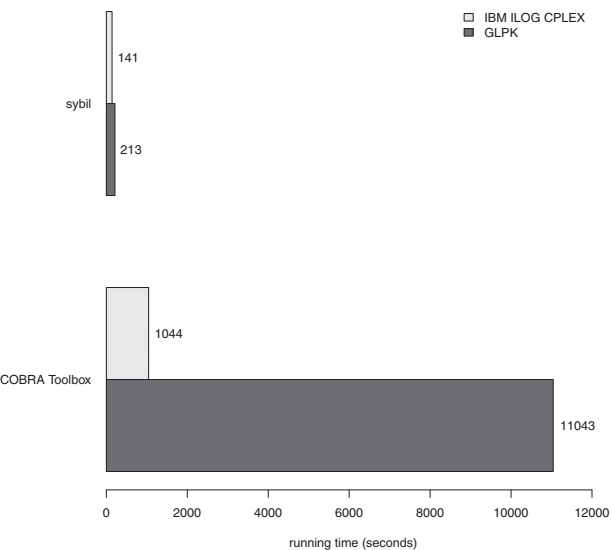


**a) genome wide single flux deletion analysis (FBA)****b) genome wide single gene deletion analysis (FBA)****c) genome wide single gene deletion analysis (linear MOMA)****d) genome wide double gene deletion analysis**