**Interactive comment on** “**MP CBM-Z V1.0: design for a new CBM-Z gas-phase chemical mechanism architecture for next generation processors**” *by Hui Wang et al.*

**Anonymous Referee #1**

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In this manuscript, the authors design a architecture for CBM-Z chemical mechanism on next generation processors. This is interesting and quite useful for the routine numerical air quality forecast. I believe that this acceleration is helpful to policy managers. The acceleration of chemical solver is a difficult problem since 1980s. The computer technique has a rapid development. However, air quality models do not fully utilize this development. The contribution is generally well-written and complete. I suggested this manuscript to be published after considering the following comments.

SpeciñAc Comments: 1. In figure 4, The authors plots the intercomparison of SO2, O3, H2O2, NO, H2SO4 between base and optimized simulations. I suggested some short-lived species like OH, HO2, RO2 should be compared, becaused these species is more sensitive to the mechinism, and very important to atmospheric oxidation. 2. The scenario in this manuscript is urban/polluted conditions. The authors presents comparisons in other scenario like marine, biomass burning.