

# TPC Processing speed evolution since 2023 Pb-Pb



- Note that this table sums up effects of individual commits related to a topic, not following the real chronological order of commits, thus ignoring all interplay of the commits. This is not fully precise but gives an overview.
- All speedups / slowdowns here are normalized to the 2023 Pb-Pb time. Measuring step by step would give other percentages.
- All is measured using full O2PDPSuite builds, processing a reference MC time frame with 100 Pb-Pb collisions.
- Measurements are done on an MI50 EPN node, using a single GPU.

Software version	Time per TF	Performance impact	Performance vs 2023 Pb-Pb
2023 Pb-Pb	3.430 s	0.0 %	0.0 %
Building average q, use q in cluster errors	3.832 s	-11.7 %	-11.7 %
Dead channel map + V/M shape correction map	4.678 s	-24.6 %	-36.4 %
Unrelated change in MatLUT causing ROCm compiler problem	4.812 s	-3.9 %	-40.3 %
IFC cluster errors	4.898 s	-2.5 %	-42.8 %
Other changes	4.934 s	-1.1 %	-43.8 %
Code improvements, fix MatLUT problem, better compile flags	4.756 s	+5.2 %	-38.6 %
RTC constexpr optimization	4.572 s	+5.4 %	-33.3 %
RTC mitigation for V/M shape corrections	3.875 s	+20.3 %	-13.0 %
Test with single static TPC transformation map in code	3.126 s	+21.8 %	+8.9 %