

Towards performance benchmarks for VT26 on Virgo

A. Redelbach, S. Schütt

30/07/2026

FIAS, Goethe Universität

Results for CPU scaling on VIRGO – Event-based

- Recent Cbmroot, including „tracking window“
- Setup (yaml) from Sergei Z.
- Significant acceleration (factor 20 reproduced)
- „reserved“ used for „work“ partition (nodes ccexe0113, ccexe0141, ccexe0152)
- Largest contribution from TrdHitBuilding!

Reco steps:

Unpack
DigiTrigger
EventReco
KfpSelector

Not visible

Num. of OpenMP threads	CA runtime (in ms)	Total wall time (in ms), rate
1	26253	204092 (0.002 GB/s)
2	13389	102757 (0.005 GB/s)
4	6683	53388 (0.009 GB/s)
8	3498	27897 (0.017 GB/s)
16	1803	15077 (0.031 GB/s)
32	860	8651 (0.055 GB/s)
64	674	5914 (0.080 GB/s)
128	273	5056 (0.093 GB/s)
256	232	4271 (0.111 GB/s)

Results for CPU on VIRGO - Time-based

„reserved“ used for „work“ partition (nodes ccexe0105, ccexe0116, ccexe0174)

Largest contribution from TrdHitBuilding!

Reco steps:

Unpack
DigiTrigger
LocalReco
Tracking
EventReco
KfpSelector

Num. of OpenMP threads	CA runtime (before EventReco)	CA runtime (in EventReco)	Total wall time (in ms), rate
1	8636	26294	239164 (0.002 GB/s)
2	4927	13291	127800 (0.004 GB/s)
4	2776	6565	67152 (0.007 GB/s)
8	1641	3465	36144 (0.013 GB/s)
16	1098	1773	20377 (0.023 GB/s)
32	816	852	12111 (0.039 GB/s)
64	683	399	8011 (0.059 GB/s)
128	683	263	7232 (0.065 GB/s)
256	722	308	6444 (0.073 GB/s)

Test results for GPU on VIRGO/HYDRA - Time-based

Input from Grigory:

```
export PARS_DIR=/lustre/cbm/users/gkozlov/2026/vt26_tests/pars_vt26 export  
IMAGE=/lustre/cbm/users/gkozlov/2026/vt26_tests/cbm_online-master.sif export  
OUTPUT_DIR=/lustre/cbm/users/aredelb/lustre_shared/slurm_vt26_gpu/
```

```
sbatch --account=cbm submit_cbmreco_hydra_mi100.sbatch
```

Reco steps:

Unpack
DigiTrigger
LocalReco
Tracking

Kernel time:	378.569 ms (0.483 GB/s)
Wall time:	4756.210 ms (0.038 GB/s)

More detailed time
measurements in preparation

Wall times:

STS reco	249 ms
TOF reco	709 ms
TRD reco	1008 ms