

# HNCO

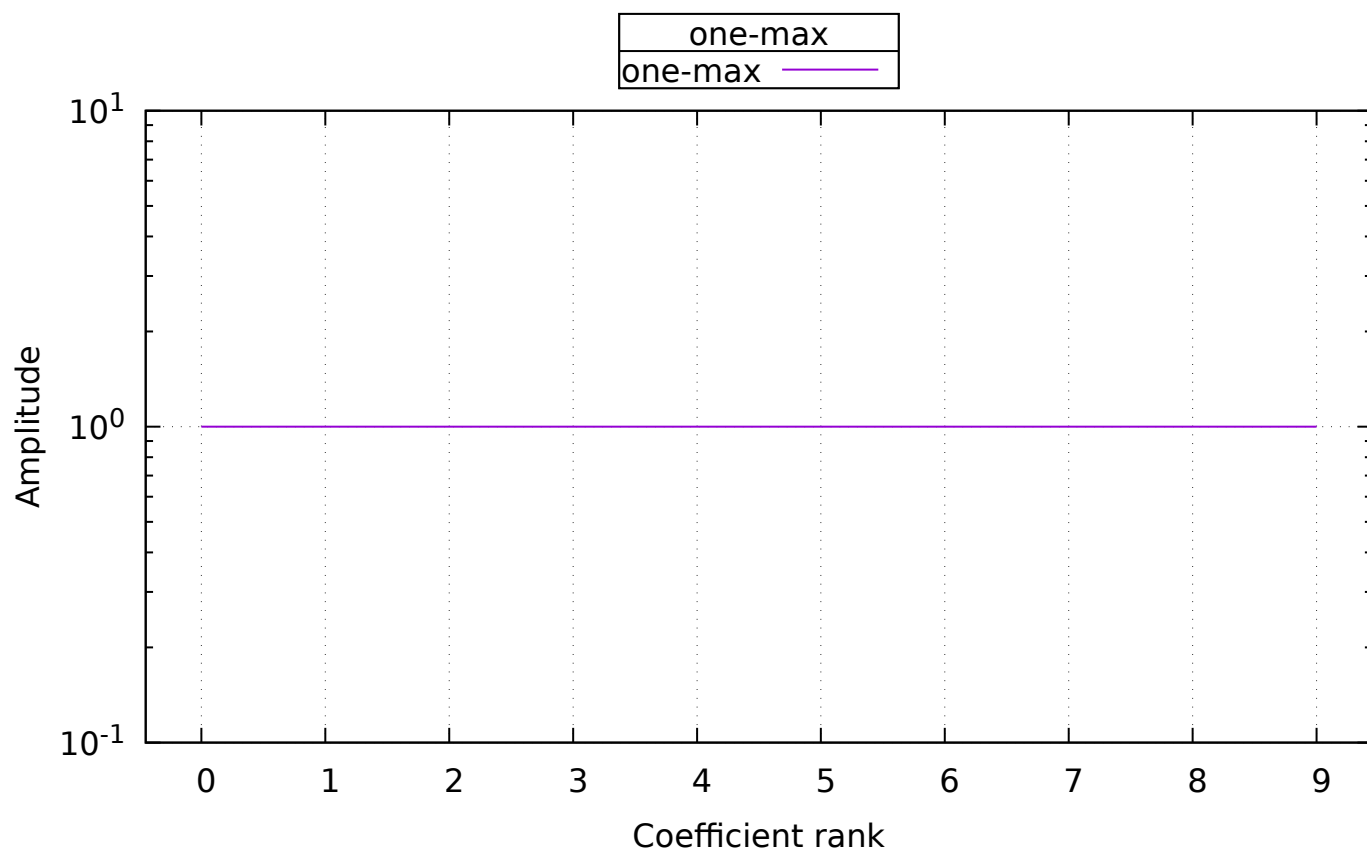
## Evolution of maximum of various black box optimization algorithms

June 25, 2018

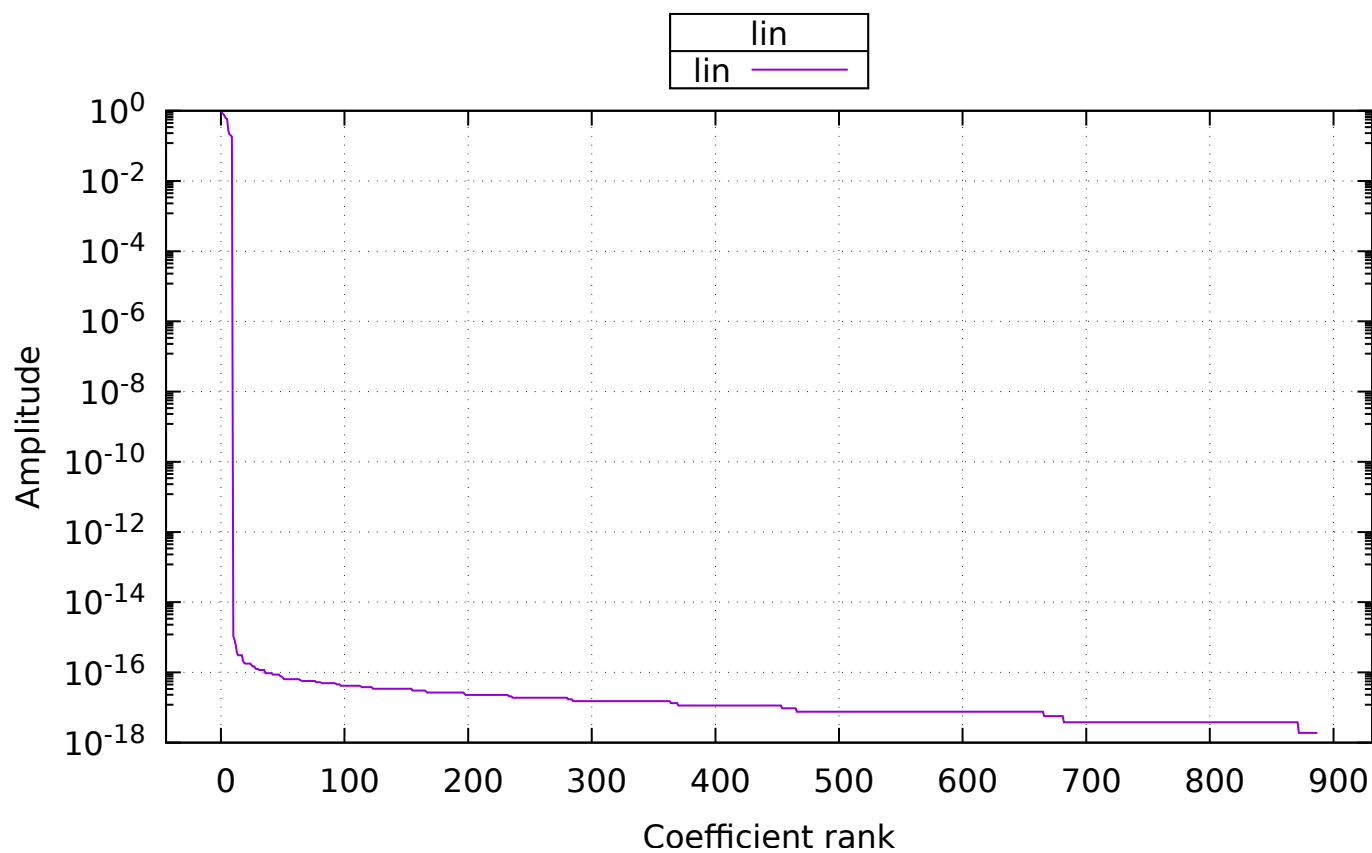
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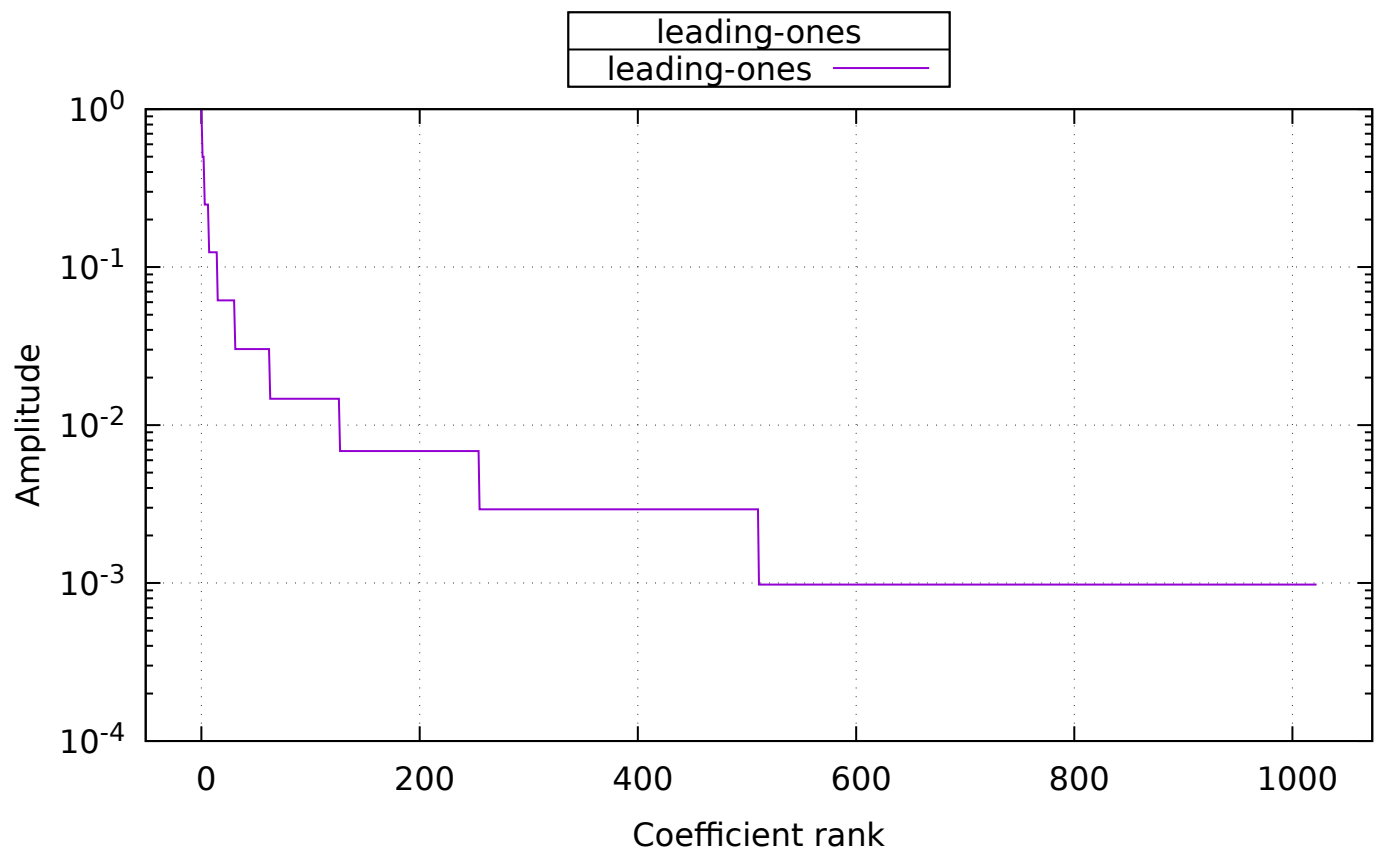
## 1 one-max



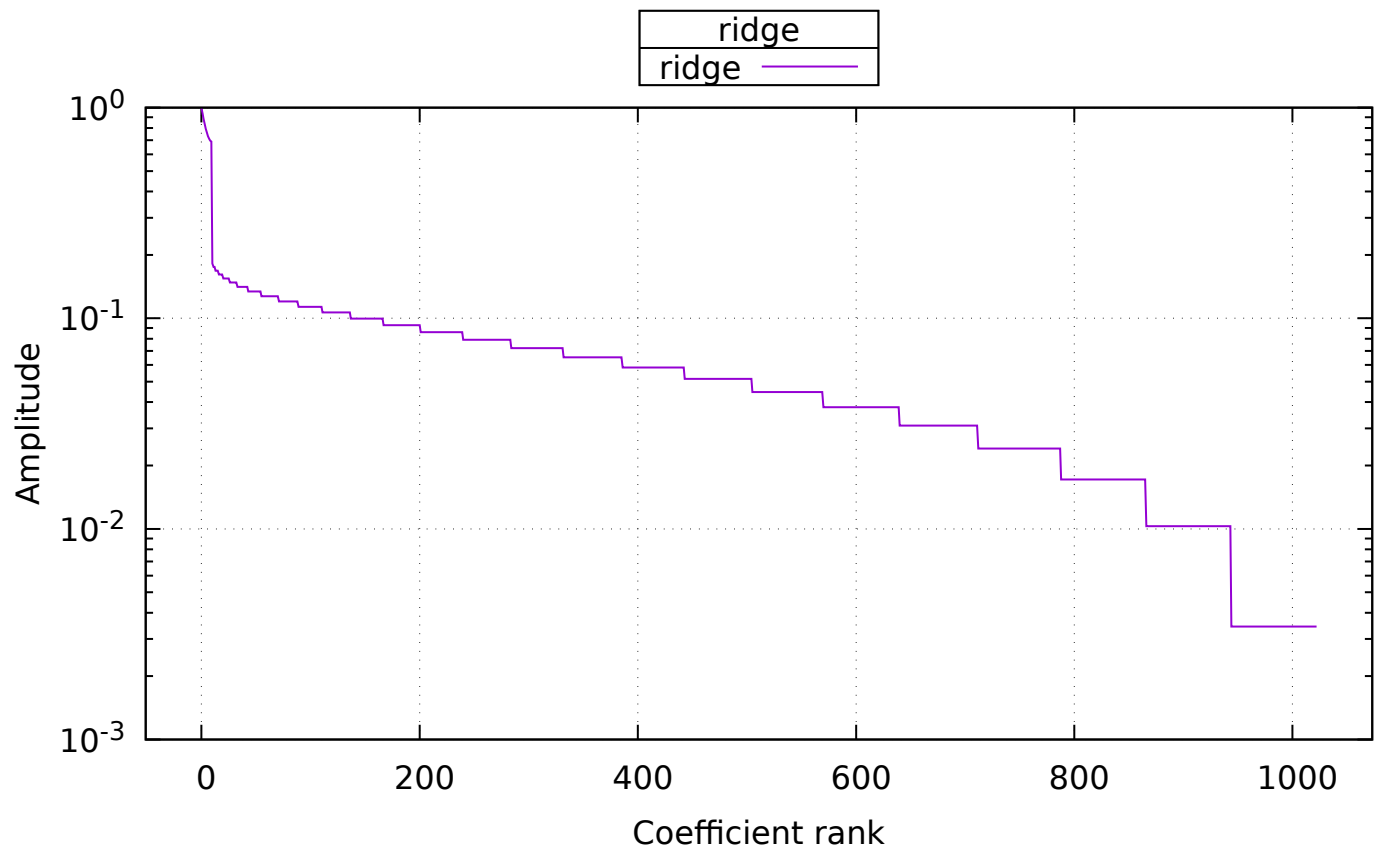
## 2 lin



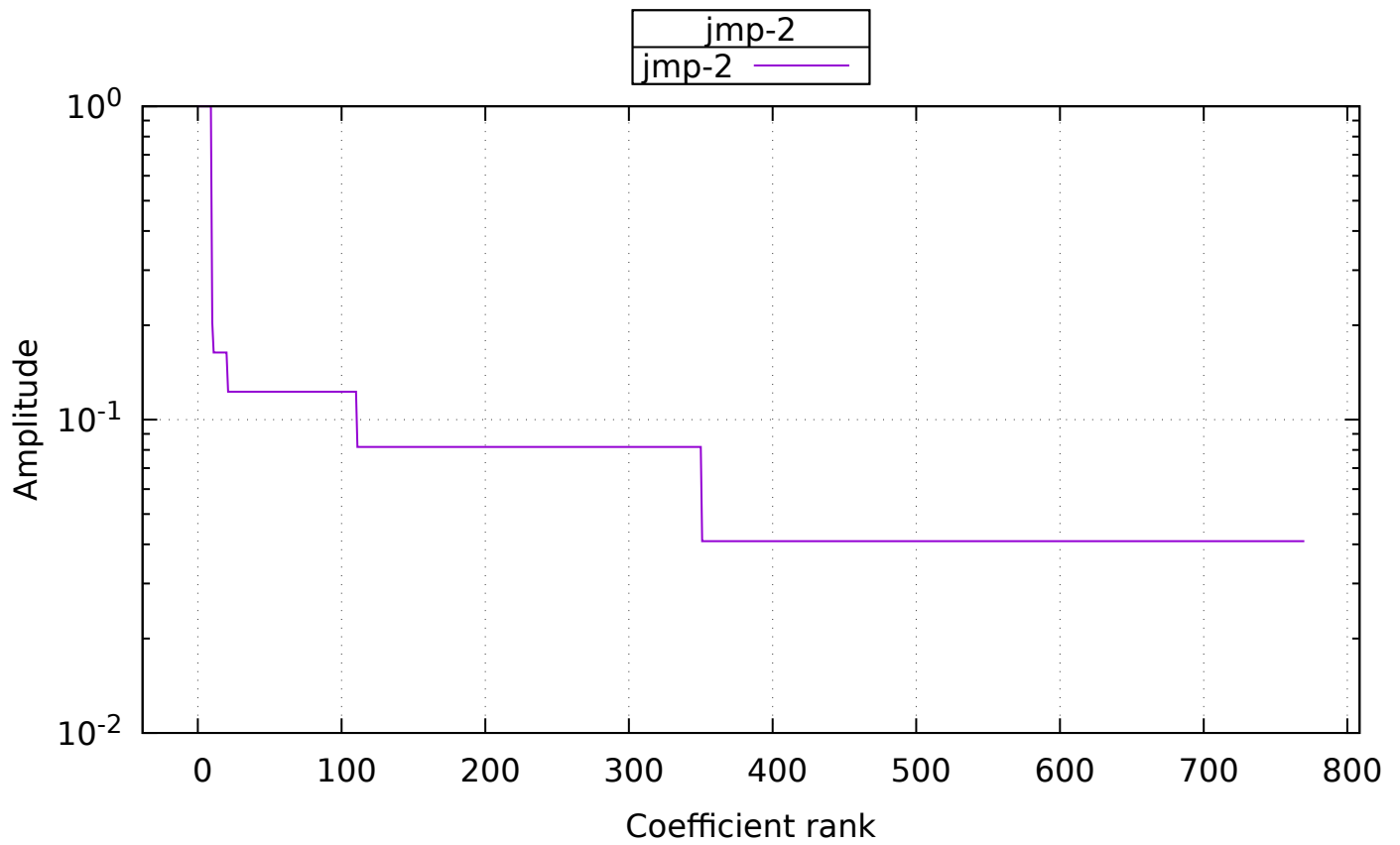
### 3 leading-ones



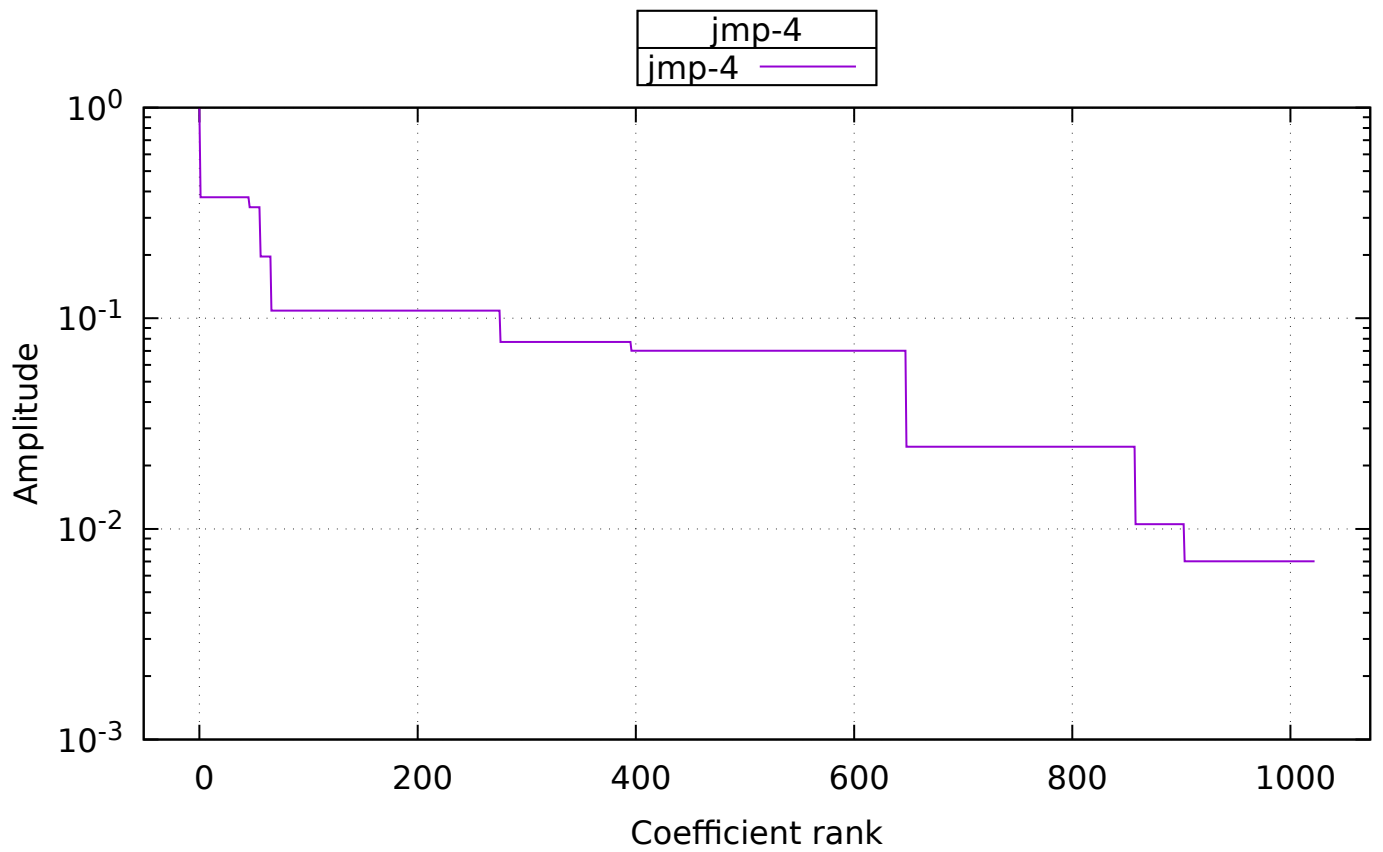
### 4 ridge



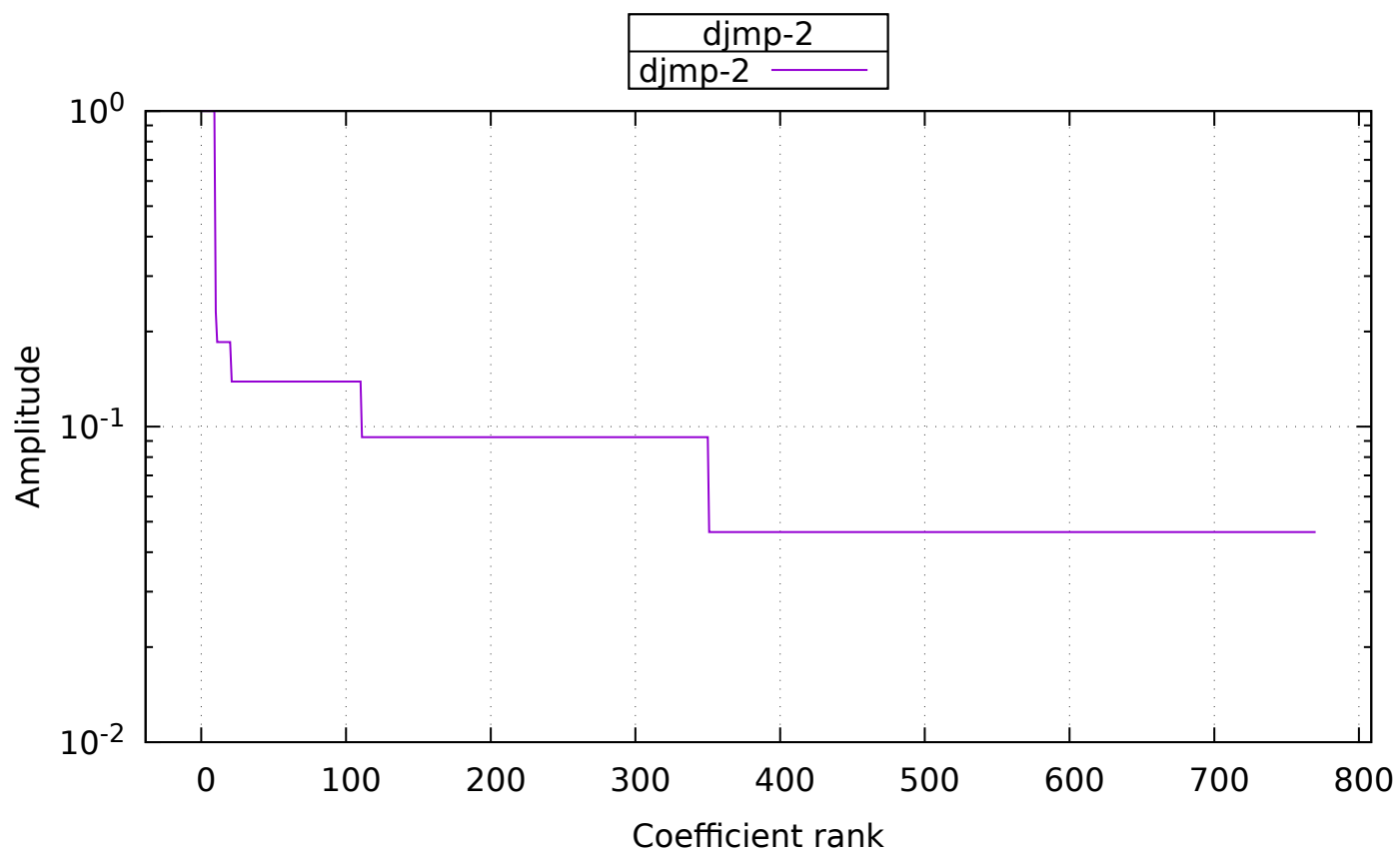
## 5 jmp-2



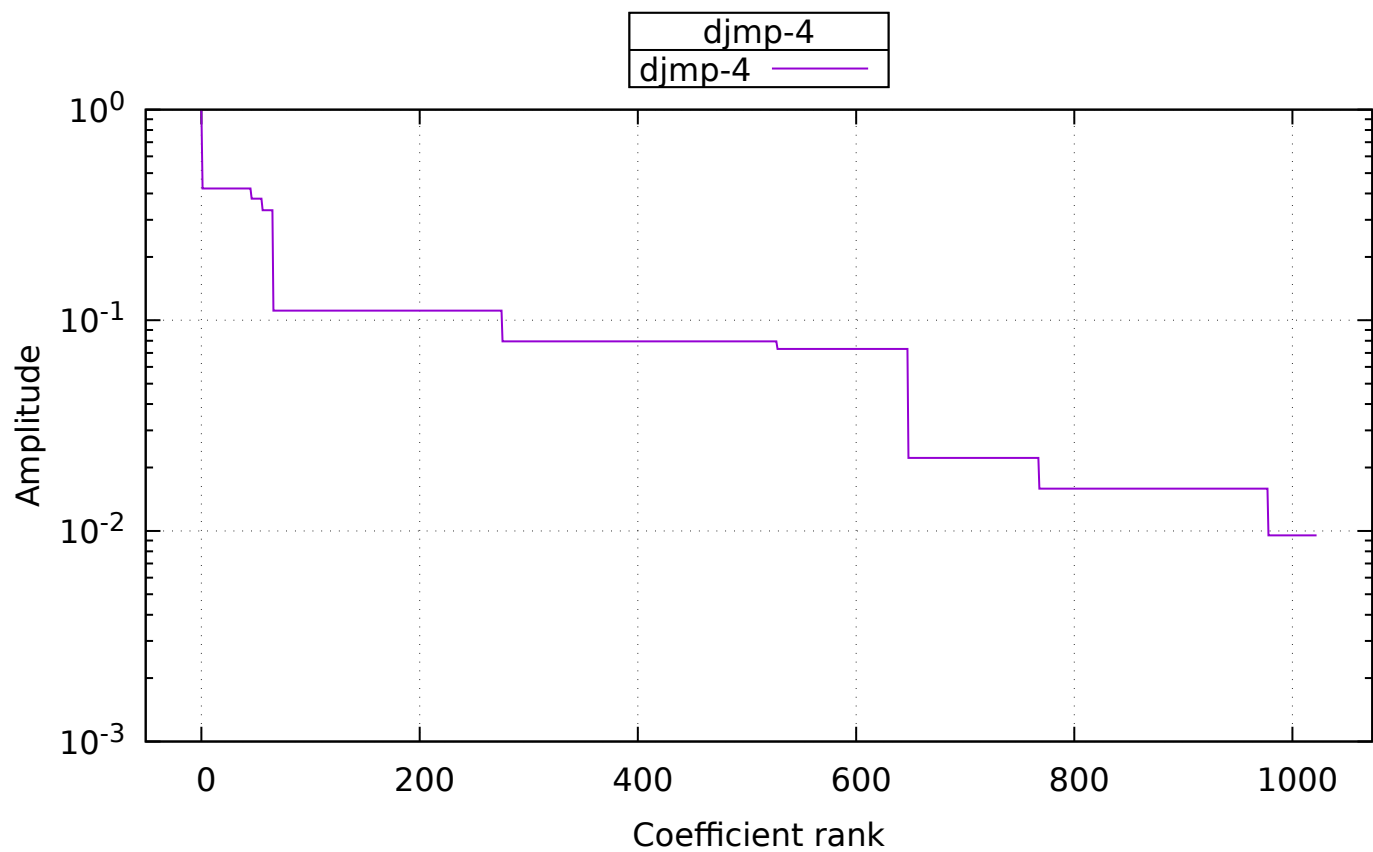
## 6 jmp-4



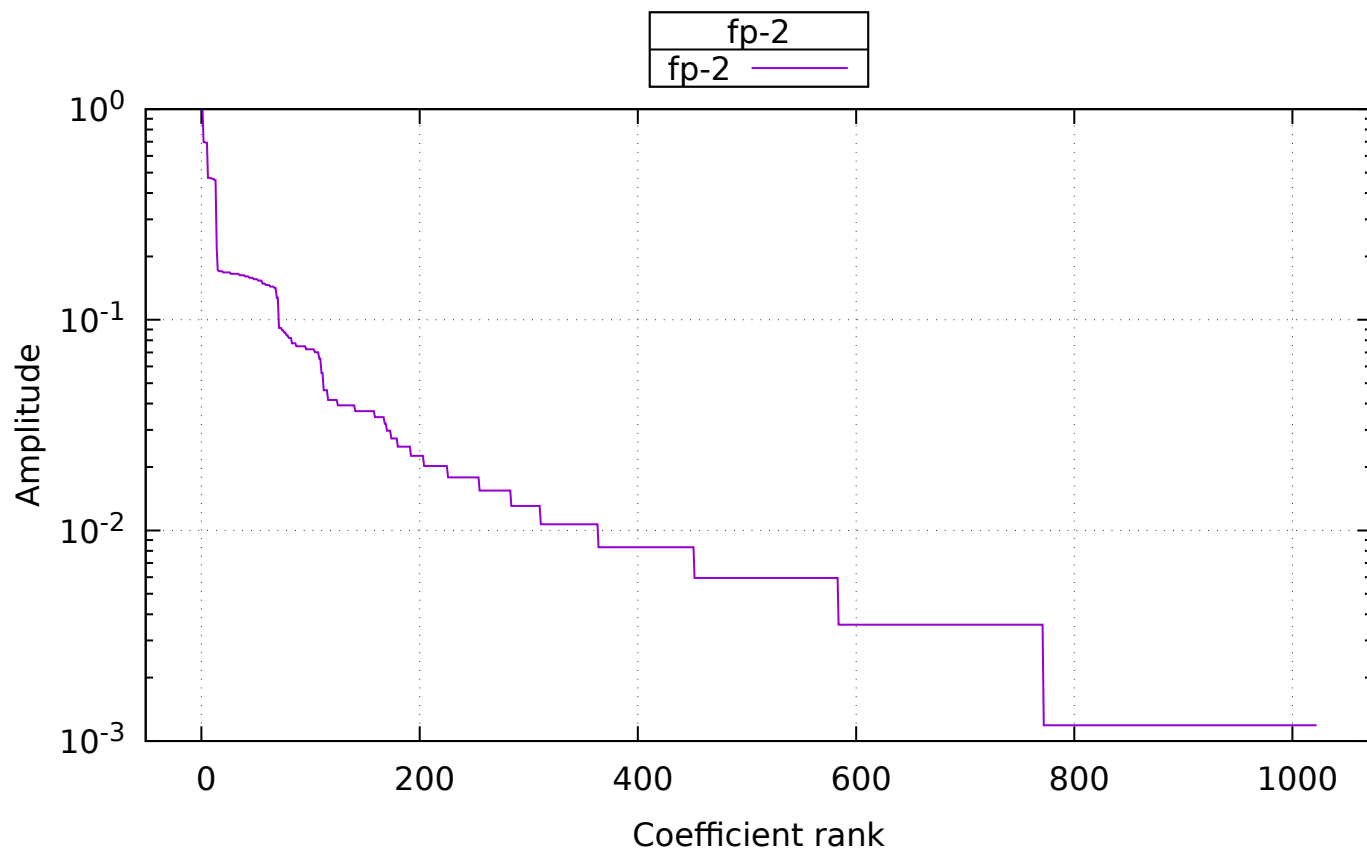
## 7 djmp-2



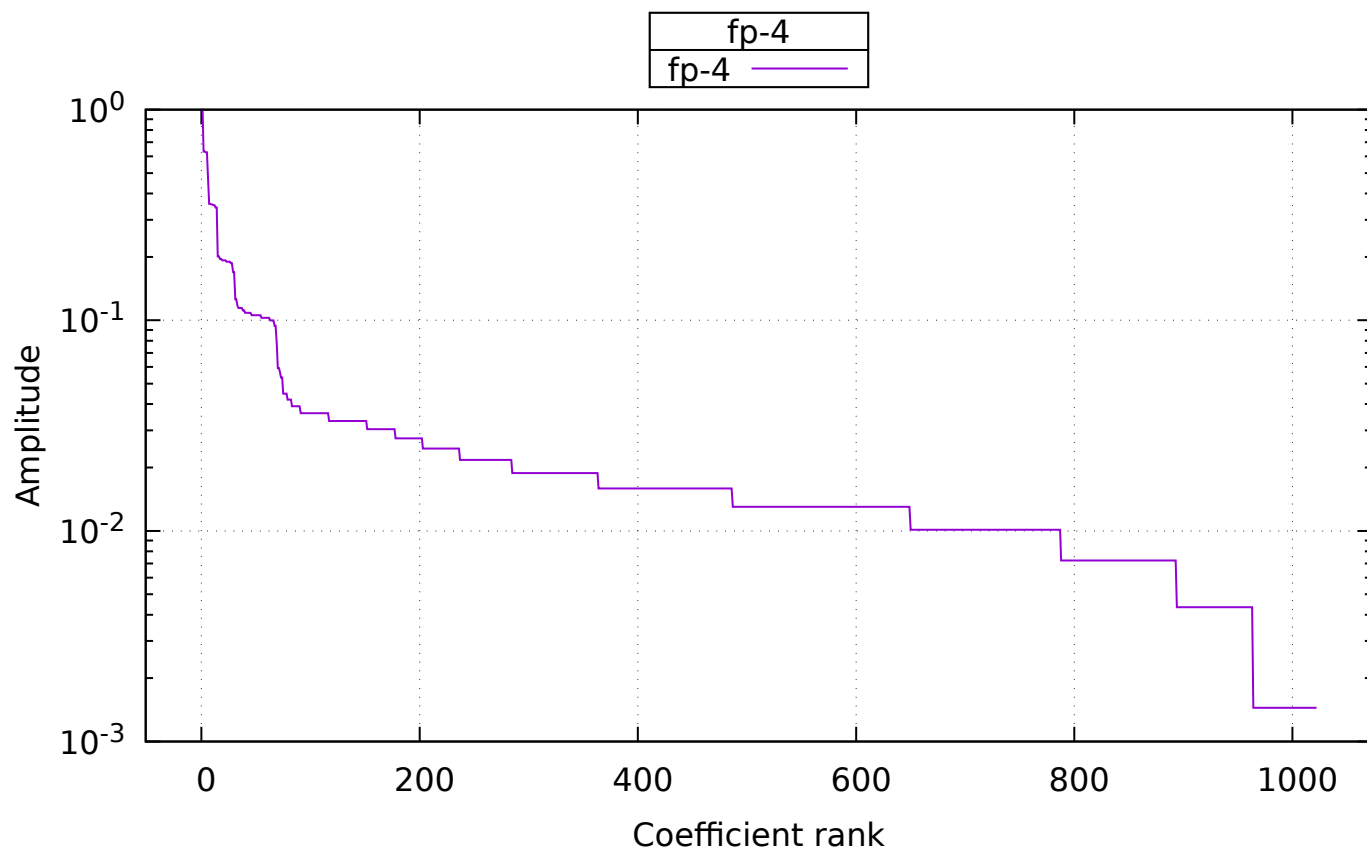
## 8 djmp-4



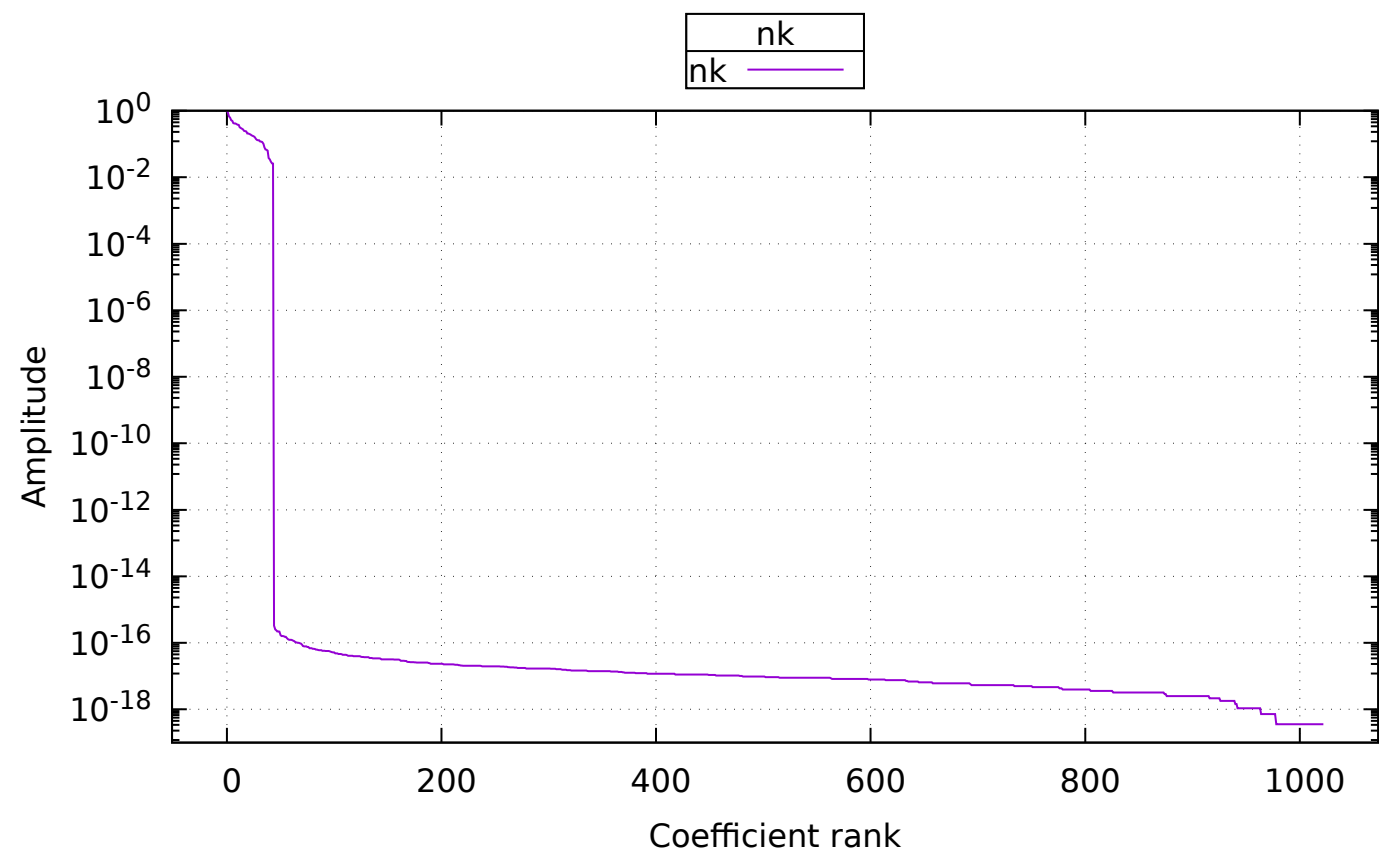
9 fp-2



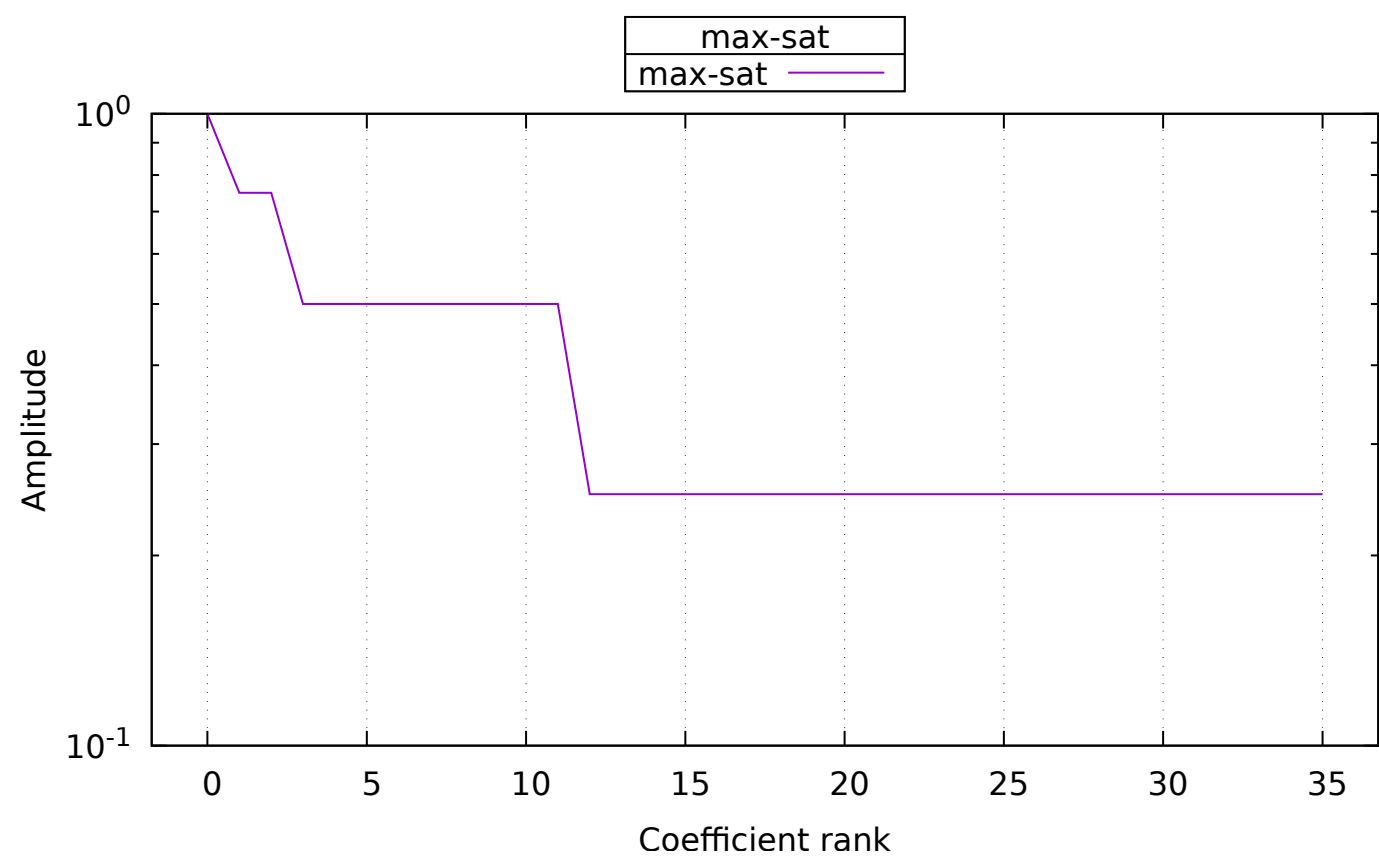
10 fp-4



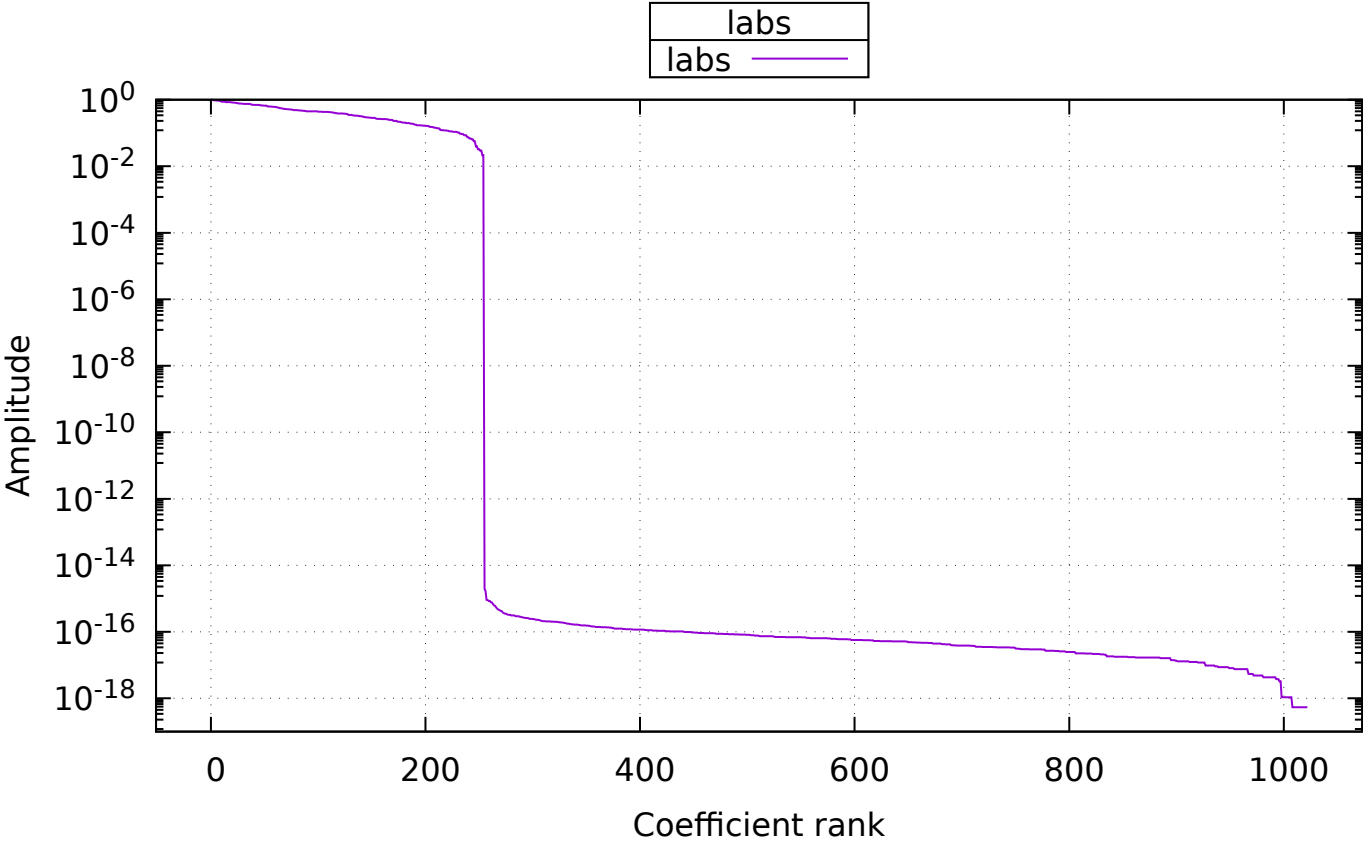
11 nk



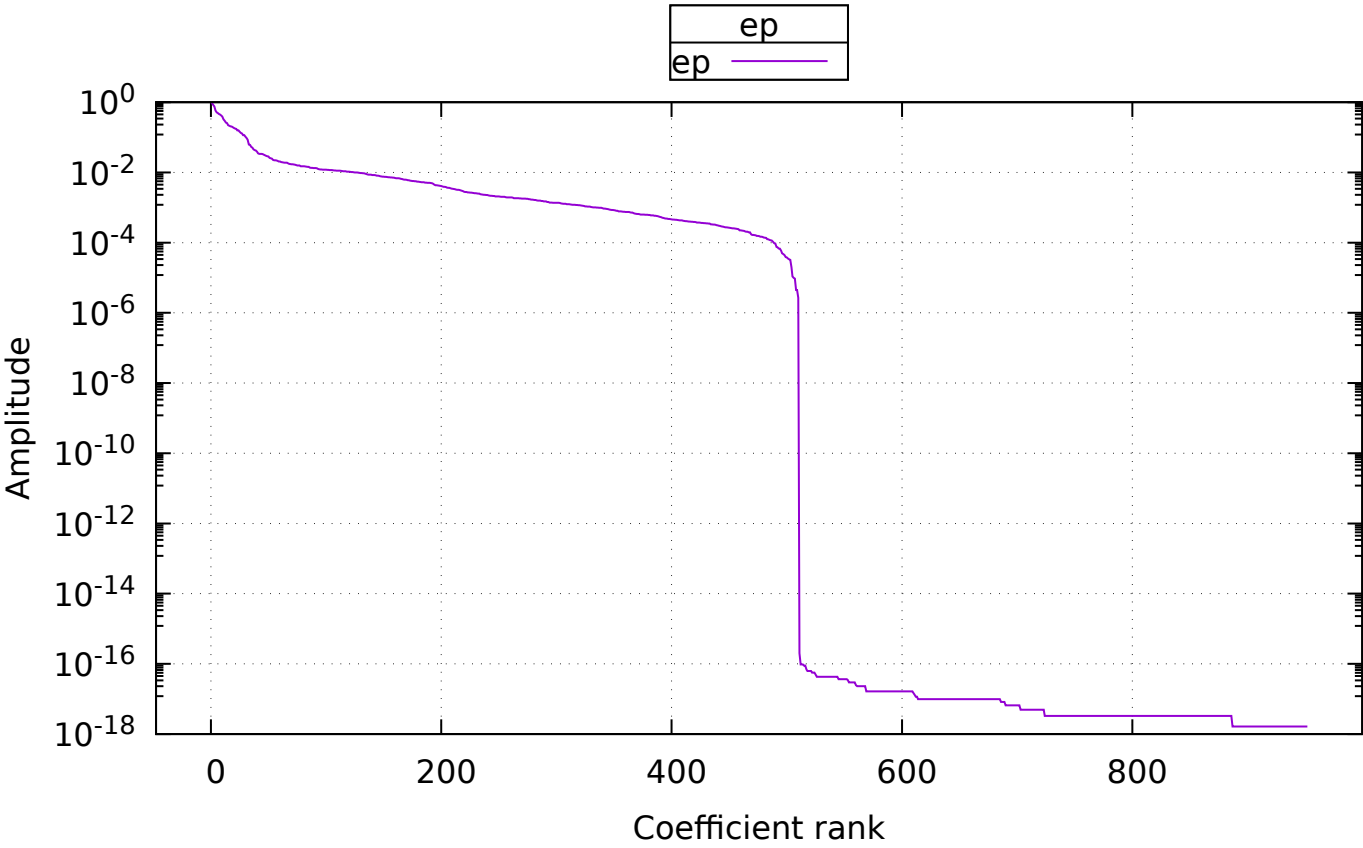
12 max-sat



13 labs

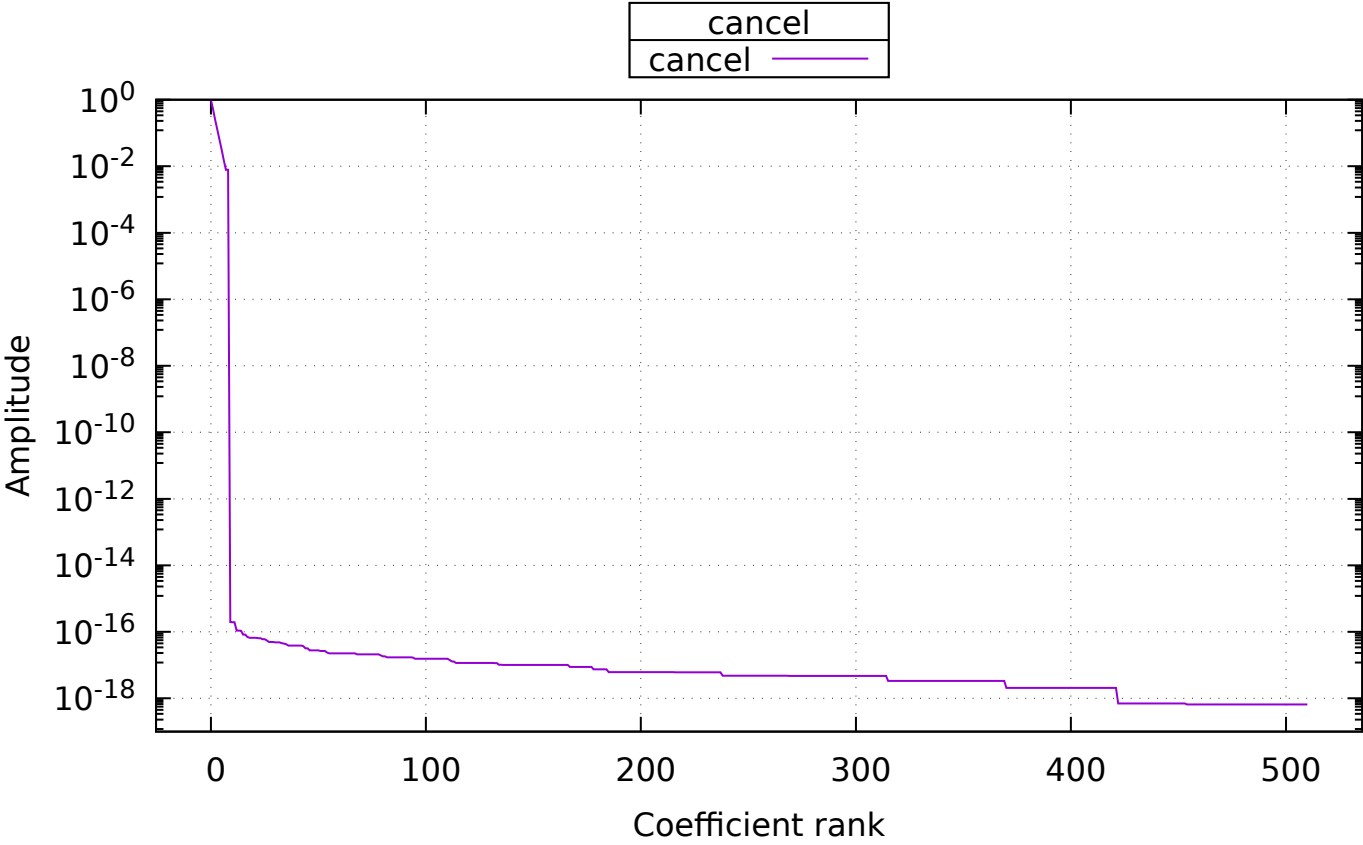


14 ep

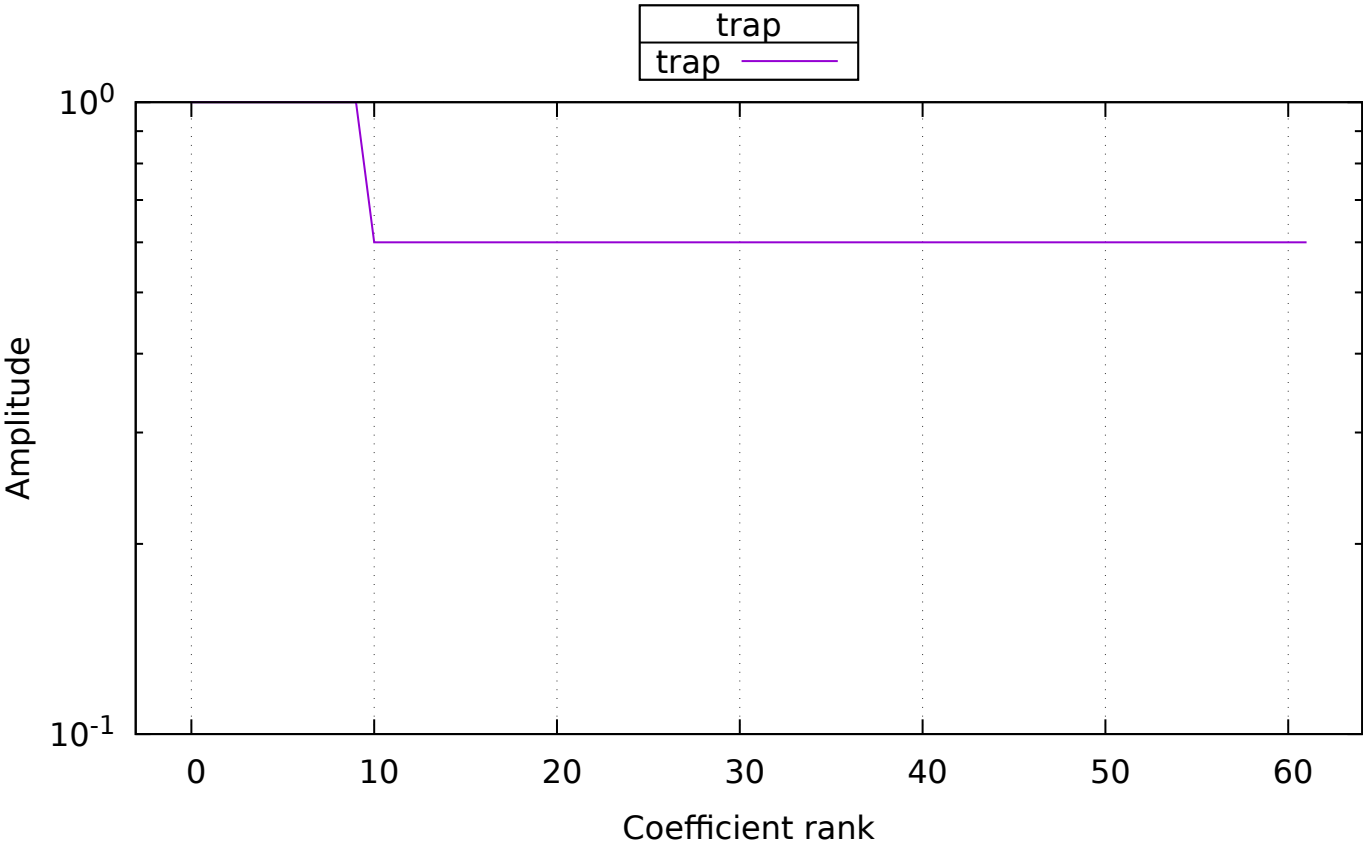




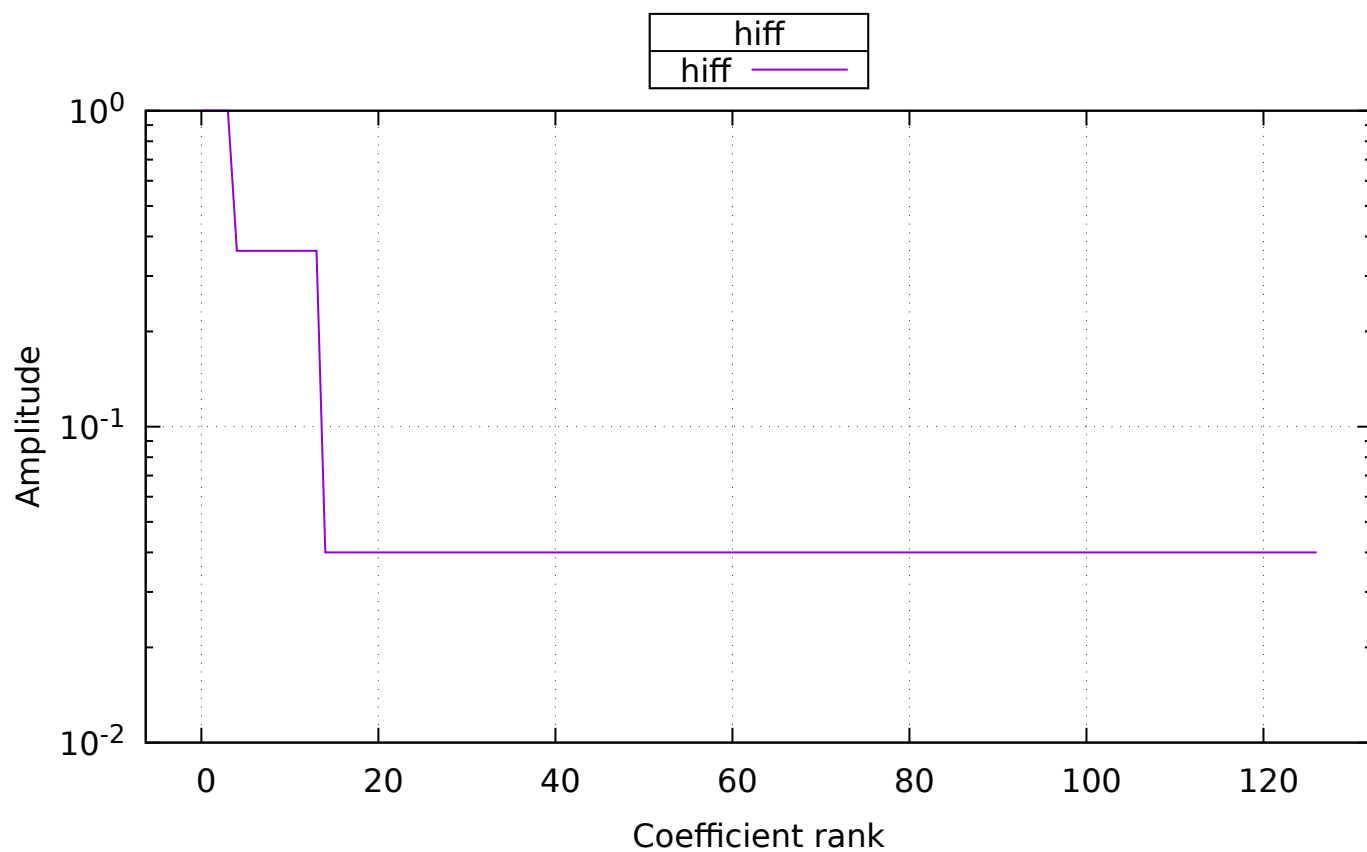
15    cancel



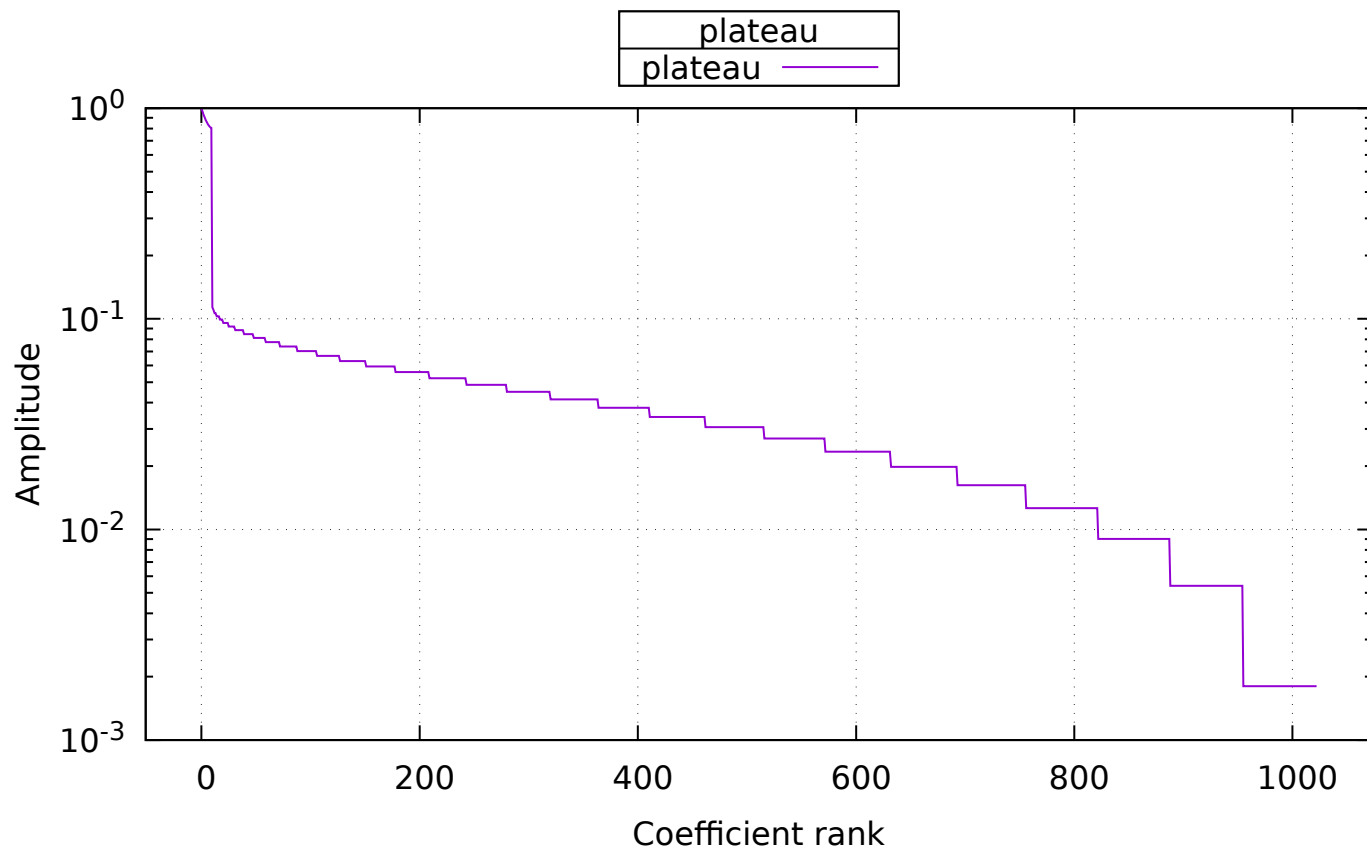
16    trap



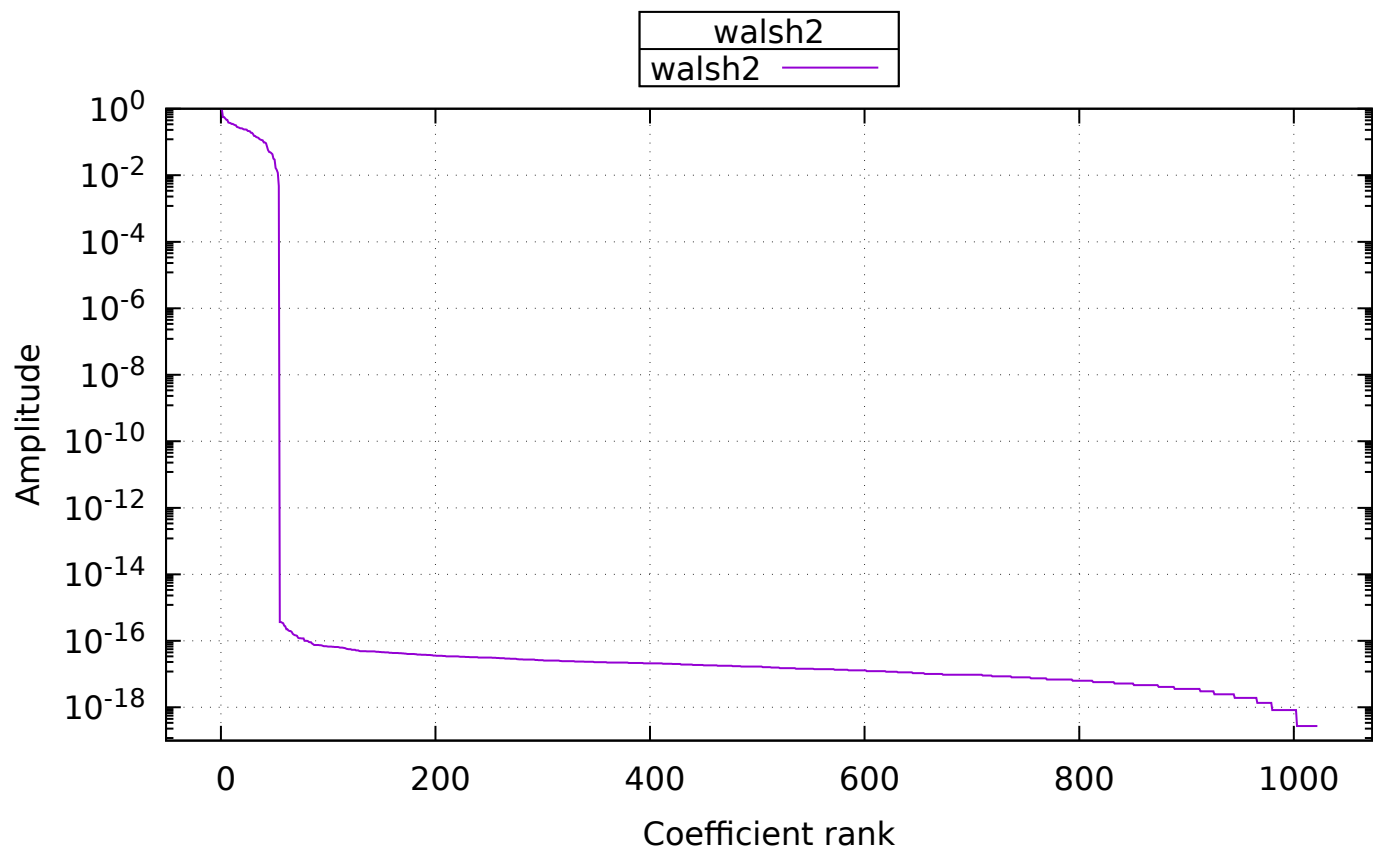
17 hiff



18 plateau



## 19 walsh2



## A Plan

```
{
  "exec": "hnco",
  "opt": "--fn-walsh-transform -b 0 -s 10",
  "parallel": true,
  "results": "results",
  "graphics": "graphics",
  "report": "report",
  "xlogscale": false,
  "ylogscale": true,
  "functions": [
    {
      "id": "one-max",
      "opt": "-F 0",
      "col": ">{\nprounddigits{0}}N{3}{0}"
    },
    {
      "id": "lin",
      "opt": "-F 1 -p instances/lin.10",
      "col": ">{\nprounddigits{2}}N{2}{2}"
    },
    {
      "id": "leading-ones",
      "opt": "-F 10",
      "col": ">{\nprounddigits{0}}N{3}{0}"
    },
    {
      "id": "ridge",
      "opt": "-F 11",
      "col": ">{\nprounddigits{0}}N{3}{0}"
    }
  ]
}
```

```

    "id": "jmp-2",
    "opt": "-F 30 -t 2",
    "col": ">{\nprounddigits{0}}N{3}{0}"
  },
  {
    "id": "jmp-4",
    "opt": "-F 30 -t 4",
    "col": ">{\nprounddigits{0}}N{3}{0}"
  },
  {
    "id": "djmp-2",
    "opt": "-F 31 -t 2",
    "col": ">{\nprounddigits{0}}N{3}{0}"
  },
  {
    "id": "djmp-4",
    "opt": "-F 31 -t 4",
    "col": ">{\nprounddigits{0}}N{3}{0}"
  },
  {
    "id": "fp-2",
    "opt": "-F 40 -t 2",
    "col": ">{\nprounddigits{0}}N{3}{0}"
  },
  {
    "id": "fp-4",
    "opt": "-F 40 -t 4",
    "col": ">{\nprounddigits{0}}N{3}{0}"
  },
  {
    "id": "nk",
    "opt": "-F 60 -p instances/nk.10.2",
    "col": ">{\nprounddigits{2}}N{1}{2}"
  },
  {
    "id": "max-sat",
    "opt": "-F 70 -p instances/ms.10.3.10",
    "col": ">{\nprounddigits{0}}N{3}{0}"
  },
  {
    "id": "labs",
    "opt": "-F 80",
    "col": ">{\nprounddigits{2}}N{1}{2}"
  },
  {
    "id": "ep",
    "opt": "-F 90 -p instances/ep.10",
    "reverse": true,
    "logscale": true,
    "col": ">{\nprounddigits{2}}N{1}{2}"
  },
  {
    "id": "cancel",
    "opt": "-F 100 -s 9",
    "reverse": true,
    "col": ">{\nprounddigits{2}}N{1}{2}"
  },
  {
    "id": "trap",
    "opt": "-F 110 --fn-num-traps 2",
    "col": ">{\nprounddigits{0}}N{3}{0}"
  },
  {

```

```

        "id": "hiff",
        "opt": "-F 120 -s 8",
        "col": ">{{\nprouddigits{0}}}N{3}{0}"
    },
    {
        "id": "plateau",
        "opt": "-F 130",
        "col": ">{{\nprouddigits{0}}}N{3}{0}"
    },
    {
        "id": "walsh2",
        "opt": "-F 162 -p instances/walsh2.10",
        "col": ">{{\nprouddigits{2}}}N{3}{2}"
    }
]
}

```

## B Default parameters

```

# algorithm = 100
# bm_mc_reset_strategy = 1
# bm_num_gs_cycles = 1
# bm_num_gs_steps = 100
# bm_sampling = 1
# budget = 10000
# bv_size = 100
# cache_budget = 0
# ea_lambda = 100
# ea_mu = 10
# fn_name = noname
# fn_num_traps = 10
# fn_prefix_length = 2
# fn_threshold = 10
# function = 0
# ga_crossover_bias = 0.5
# ga_crossover_probability = 0.5
# ga_tournament_size = 10
# hea_binary_dynamics = 0
# hea_delay = 10000
# hea_num_par_updates = 1
# hea_num_seq_updates = 100
# hea_rate_strategy = 0
# hea_reset_period = 0
# hea_sampling_method = 0
# hea_time_constant = 1000
# hea_weight = 1
# learning_rate = 0.001
# map = 0
# map_input_size = 100
# map_path = nopath
# mutation_probability = 1
# neighborhood = 0
# neighborhood_iterator = 0
# noise_stddev = 1
# num_iterations = 0
# num_threads = 1
# path = nopath
# pn_mutation_probability = 1
# pn_neighborhood = 0
# pn_radius = 2
# population_size = 10
# pv_log_num_components = 5

```

```
# radius = 2
# rls_patience = 50
# sa_beta_ratio = 1.2
# sa_initial_acceptance_probability = 0.6
# sa_num_transitions = 50
# sa_num_trials = 100
# seed = 0
# selection_size = 1
# target = 100
# print_defaults
# last_parameter
# exec_name = hnco
# version = 0.9
# Generated from hnco.json
```