

# DihedralExtendedProfile

September 10, 2018

**Group : Dih(10000)**

Searching up to index : 125

How many normal groups are found : 14

Total Time in s : 103.3

| Function                      | Count | AbsT/s | ChildT/s | AbsS/gb | ChildS/gb |
|-------------------------------|-------|--------|----------|---------|-----------|
| PullBackH                     | 13    | 0.0    | 0.0      | 0.0     | 0.0       |
| ExponentSum                   | 76    | 0.0    | 0.0      | 0.0     | 0.0       |
| IsPowerOf                     | 112   | 0.0    | 0.0      | 0.0     | 0.0       |
| MustCheckP                    | 118   | 0.0    | 0.0      | 0.0     | 0.0       |
| NextPrimeInt                  | 118   | 0.0    | 0.0      | 0.0     | 0.0       |
| PreImagesRepresentative       | 56    | 0.0    | 0.0      | 0.0     | 0.0       |
| GeneratorsOfMagmaWithInverses | 3261  | 0.0    | 0.0      | 0.0     | 0.0       |
| MinSubgroupSizes              | 118   | 0.0    | 0.0      | 0.0     | 0.0       |
| Core                          | 5     | 0.0    | 0.0      | 0.0     | 0.0       |
| Intersection                  | 66    | 0.0    | 0.0      | 0.0     | 0.0       |
| NaturalHomomorphismBySubspace | 13    | 0.0    | 0.0      | 0.0     | 0.0       |
| FindIntersections             | 11    | 0.0    | 0.0      | 0.0     | 0.0       |
| GModuleByMats                 | 56    | 0.0    | 0.0      | 0.0     | 0.0       |
| LowIndexSubgroupsFpGroup      | 2     | 0.0    | 0.0      | 0.0     | 0.0       |
| Index                         | 767   | 0.0    | 0.0      | 0.0     | 0.0       |
| Image                         | 654   | 0.0    | 0.0      | 0.0     | 0.0       |
| FindTQuotients                | 1     | 0.0    | 0.0      | 0.0     | 0.0       |
| GroupHomomorphismByImagesNC   | 152   | 0.0    | 0.0      | 0.0     | 0.0       |
| IsSubgroup                    | 20    | 0.0    | 0.0      | 0.0     | 0.0       |
| AddGroup                      | 16    | 0.0    | 0.0      | 0.0     | 0.0       |
| SMTX_BasesMaximalSubmodules   | 11    | 0.0    | 0.0      | 0.0     | 0.0       |

|                           |     |       |       |      |      |
|---------------------------|-----|-------|-------|------|------|
| EpimorphismQuotientSystem | 97  | 0.0   | 0.0   | 0.0  | 0.0  |
| PreImage                  | 36  | 0.0   | 0.0   | 0.0  | 0.0  |
| Kernel                    | 13  | 0.0   | 0.0   | 0.0  | 0.0  |
| PQuotient                 | 194 | 0.2   | 0.0   | 0.0  | 0.0  |
| IsomorphismFpGroup        | 108 | 102.9 | 0.0   | 30.8 | 0.0  |
| FindPModules              | 99  | 103.3 | 103.3 | 30.8 | 30.8 |
| FindPQuotients            | 12  | 103.3 | 103.3 | 30.9 | 30.9 |
| LowIndexNormal            | 1   | 103.3 | 103.3 | 30.9 | 30.9 |

**Group : Dih(10000)**

Searching up to index : 250

How many normal groups are found : 17

Total Time in s : 138.7

| Function                      | Count | AbsT/s | ChildT/s | AbsS/gb | ChildS/gb |
|-------------------------------|-------|--------|----------|---------|-----------|
| Intersection                  | 68    | 0.0    | 0.0      | 0.0     | 0.0       |
| ExponentSum                   | 326   | 0.0    | 0.0      | 0.0     | 0.0       |
| MinSubgroupSizes              | 205   | 0.0    | 0.0      | 0.0     | 0.0       |
| FindIntersections             | 13    | 0.0    | 0.0      | 0.0     | 0.0       |
| NextPrimeInt                  | 205   | 0.0    | 0.0      | 0.0     | 0.0       |
| IsPowerOf                     | 195   | 0.0    | 0.0      | 0.0     | 0.0       |
| NaturalHomomorphismBySubspace | 20    | 0.0    | 0.0      | 0.0     | 0.0       |
| Core                          | 5     | 0.0    | 0.0      | 0.0     | 0.0       |
| GModuleByMats                 | 84    | 0.0    | 0.0      | 0.0     | 0.0       |
| MustCheckP                    | 205   | 0.0    | 0.0      | 0.0     | 0.0       |
| PullBackH                     | 20    | 0.0    | 0.0      | 0.0     | 0.0       |
| Index                         | 1272  | 0.0    | 0.0      | 0.0     | 0.0       |
| GeneratorsOfMagmaWithInverses | 5835  | 0.0    | 0.0      | 0.0     | 0.0       |
| GroupHomomorphismByImagesNC   | 256   | 0.0    | 0.0      | 0.0     | 0.0       |
| PreImagesRepresentative       | 378   | 0.0    | 0.0      | 0.0     | 0.0       |
| SMTX_BasesMaximalSubmodules   | 18    | 0.0    | 0.0      | 0.0     | 0.0       |
| IsSubgroup                    | 26    | 0.0    | 0.0      | 0.0     | 0.0       |
| AddGroup                      | 21    | 0.0    | 0.0      | 0.0     | 0.0       |
| EpimorphismQuotientSystem     | 170   | 0.0    | 0.0      | 0.0     | 0.0       |
| IsomorphismFpGroup            | 184   | 0.1    | 0.0      | 0.0     | 0.0       |
| LowIndexSubgroupsFpGroup      | 2     | 0.2    | 0.0      | 0.0     | 0.0       |

|                |      |       |       |       |       |
|----------------|------|-------|-------|-------|-------|
| FindTQuotients | 1    | 0.2   | 0.2   | 0.0   | 0.0   |
| PQuotient      | 340  | 0.4   | 0.0   | 0.0   | 0.0   |
| Image          | 1746 | 0.9   | 0.0   | 0.3   | 0.0   |
| PreImage       | 50   | 813.9 | 0.0   | 111.4 | 0.0   |
| Kernel         | 20   | 813.9 | 813.9 | 111.4 | 111.4 |
| FindPModules   | 172  | 815.6 | 815.5 | 111.9 | 111.9 |
| FindPQuotients | 14   | 815.6 | 815.6 | 111.9 | 111.9 |
| LowIndexNormal | 1    | 815.8 | 815.8 | 112.0 | 112.0 |

| Function                      | Count | AbsT/s | ChildT/s | AbsS/gb | ChildS/gb |
|-------------------------------|-------|--------|----------|---------|-----------|
| ExponentSum                   | 113   | 0.0    | 0.0      | 0.0     | 0.0       |
| IsPowerOf                     | 195   | 0.0    | 0.0      | 0.0     | 0.0       |
| FindIntersections             | 13    | 0.0    | 0.0      | 0.0     | 0.0       |
| MustCheckP                    | 205   | 0.0    | 0.0      | 0.0     | 0.0       |
| Intersection                  | 68    | 0.0    | 0.0      | 0.0     | 0.0       |
| GeneratorsOfMagmaWithInverses | 4899  | 0.0    | 0.0      | 0.0     | 0.0       |
| PullBackH                     | 20    | 0.0    | 0.0      | 0.0     | 0.0       |
| GModuleByMats                 | 84    | 0.0    | 0.0      | 0.0     | 0.0       |
| NextPrimeInt                  | 205   | 0.0    | 0.0      | 0.0     | 0.0       |
| NaturalHomomorphismBySubspace | 20    | 0.0    | 0.0      | 0.0     | 0.0       |
| Core                          | 5     | 0.0    | 0.0      | 0.0     | 0.0       |
| MinSubgroupSizes              | 205   | 0.0    | 0.0      | 0.0     | 0.0       |
| LowIndexSubgroupsFpGroup      | 2     | 0.0    | 0.0      | 0.0     | 0.0       |
| PreImagesRepresentative       | 84    | 0.0    | 0.0      | 0.0     | 0.0       |
| FindTQuotients                | 1     | 0.0    | 0.0      | 0.0     | 0.0       |
| Index                         | 1272  | 0.0    | 0.0      | 0.0     | 0.0       |
| Image                         | 1056  | 0.0    | 0.0      | 0.0     | 0.0       |
| GroupHomomorphismByImagesNC   | 256   | 0.0    | 0.0      | 0.0     | 0.0       |
| SMTX_BasesMaximalSubmodules   | 18    | 0.0    | 0.0      | 0.0     | 0.0       |
| IsSubgroup                    | 26    | 0.0    | 0.0      | 0.0     | 0.0       |
| AddGroup                      | 21    | 0.0    | 0.0      | 0.0     | 0.0       |
| EpimorphismQuotientSystem     | 170   | 0.0    | 0.0      | 0.0     | 0.0       |
| PreImage                      | 50    | 0.0    | 0.0      | 0.0     | 0.0       |
| Kernel                        | 20    | 0.0    | 0.0      | 0.0     | 0.0       |
| PQuotient                     | 340   | 0.5    | 0.0      | 0.0     | 0.0       |
| IsomorphismFpGroup            | 184   | 138.0  | 0.0      | 41.0    | 0.0       |

|                |     |       |       |      |      |
|----------------|-----|-------|-------|------|------|
| FindPModules   | 172 | 138.7 | 138.7 | 41.2 | 41.2 |
| FindPQuotients | 14  | 138.7 | 138.7 | 41.2 | 41.2 |
| LowIndexNormal | 1   | 138.7 | 138.7 | 41.2 | 41.2 |

**Group : Dih(10000)**

Searching up to index : 500

How many normal groups are found : 19

Total Time in s : 160.4

| Function                      | Count | AbsT/s | ChildT/s | AbsS/gb | ChildS/gb |
|-------------------------------|-------|--------|----------|---------|-----------|
| Intersection                  | 112   | 0.0    | 0.0      | 0.0     | 0.0       |
| ExponentSum                   | 134   | 0.0    | 0.0      | 0.0     | 0.0       |
| IsPowerOf                     | 344   | 0.0    | 0.0      | 0.0     | 0.0       |
| FindIntersections             | 16    | 0.0    | 0.0      | 0.0     | 0.0       |
| NextPrimeInt                  | 362   | 0.0    | 0.0      | 0.0     | 0.0       |
| MustCheckP                    | 362   | 0.0    | 0.0      | 0.0     | 0.0       |
| Core                          | 11    | 0.0    | 0.0      | 0.0     | 0.0       |
| GModuleByMats                 | 96    | 0.0    | 0.0      | 0.0     | 0.0       |
| PullBackH                     | 23    | 0.0    | 0.0      | 0.0     | 0.0       |
| NaturalHomomorphismBySubspace | 23    | 0.0    | 0.0      | 0.0     | 0.0       |
| LowIndexSubgroupsFpGroup      | 2     | 0.0    | 0.0      | 0.0     | 0.0       |
| MinSubgroupSizes              | 362   | 0.0    | 0.0      | 0.0     | 0.0       |
| Index                         | 2045  | 0.0    | 0.0      | 0.0     | 0.0       |
| GeneratorsOfMagmaWithInverses | 7180  | 0.0    | 0.0      | 0.0     | 0.0       |
| SMTX_BasesMaximalSubmodules   | 21    | 0.0    | 0.0      | 0.0     | 0.0       |
| PreImagesRepresentative       | 96    | 0.0    | 0.0      | 0.0     | 0.0       |
| FindTQuotients                | 1     | 0.0    | 0.0      | 0.0     | 0.0       |
| GroupHomomorphismByImagesNC   | 397   | 0.0    | 0.0      | 0.0     | 0.0       |
| Image                         | 1618  | 0.0    | 0.0      | 0.0     | 0.0       |
| IsSubgroup                    | 35    | 0.0    | 0.0      | 0.0     | 0.0       |
| AddGroup                      | 27    | 0.0    | 0.0      | 0.0     | 0.0       |
| Kernel                        | 23    | 0.1    | 0.1      | 0.0     | 0.0       |
| PreImage                      | 62    | 0.1    | 0.0      | 0.0     | 0.0       |
| EpimorphismQuotientSystem     | 297   | 0.1    | 0.0      | 0.0     | 0.0       |
| PQuotient                     | 594   | 0.8    | 0.0      | 0.1     | 0.0       |
| IsomorphismFpGroup            | 313   | 159.2  | 0.0      | 47.9    | 0.0       |

|                |     |       |       |      |      |
|----------------|-----|-------|-------|------|------|
| FindPModules   | 299 | 160.4 | 160.4 | 48.1 | 48.1 |
| FindPQuotients | 17  | 160.4 | 160.4 | 48.1 | 48.1 |
| LowIndexNormal | 1   | 160.4 | 160.4 | 48.1 | 48.1 |

**Group : Dih(10000)**

Searching up to index : 1000

How many normal groups are found : 21

Total Time in s : 172.4

| Function                      | Count | AbsT/s | ChildT/s | AbsS/gb | ChildS/gb |
|-------------------------------|-------|--------|----------|---------|-----------|
| ExponentSum                   | 155   | 0.0    | 0.0      | 0.0     | 0.0       |
| IsPowerOf                     | 612   | 0.0    | 0.0      | 0.0     | 0.0       |
| FindIntersections             | 18    | 0.0    | 0.0      | 0.0     | 0.0       |
| NaturalHomomorphismBySubspace | 26    | 0.0    | 0.0      | 0.0     | 0.0       |
| GModuleByMats                 | 108   | 0.0    | 0.0      | 0.0     | 0.0       |
| Intersection                  | 142   | 0.0    | 0.0      | 0.0     | 0.0       |
| MinSubgroupSizes              | 641   | 0.0    | 0.0      | 0.0     | 0.0       |
| Core                          | 17    | 0.0    | 0.0      | 0.0     | 0.0       |
| PreImagesRepresentative       | 108   | 0.0    | 0.0      | 0.0     | 0.0       |
| MustCheckP                    | 641   | 0.0    | 0.0      | 0.0     | 0.0       |
| PullBackH                     | 26    | 0.0    | 0.0      | 0.0     | 0.0       |
| NextPrimeInt                  | 641   | 0.0    | 0.0      | 0.0     | 0.0       |
| LowIndexSubgroupsFpGroup      | 2     | 0.0    | 0.0      | 0.0     | 0.0       |
| Index                         | 3355  | 0.0    | 0.0      | 0.0     | 0.0       |
| FindTQuotients                | 1     | 0.0    | 0.0      | 0.0     | 0.0       |
| GeneratorsOfMagmaWithInverses | 10651 | 0.0    | 0.0      | 0.0     | 0.0       |
| SMTX_BasesMaximalSubmodules   | 24    | 0.0    | 0.0      | 0.0     | 0.0       |
| Image                         | 2564  | 0.0    | 0.0      | 0.0     | 0.0       |
| IsSubgroup                    | 42    | 0.0    | 0.0      | 0.0     | 0.0       |
| AddGroup                      | 33    | 0.0    | 0.0      | 0.0     | 0.0       |
| GroupHomomorphismByImagesNC   | 633   | 0.0    | 0.0      | 0.0     | 0.0       |
| PreImage                      | 74    | 0.1    | 0.0      | 0.0     | 0.0       |
| Kernel                        | 26    | 0.1    | 0.1      | 0.0     | 0.0       |
| EpimorphismQuotientSystem     | 520   | 0.1    | 0.0      | 0.0     | 0.0       |
| PQuotient                     | 1040  | 1.5    | 0.0      | 0.1     | 0.0       |
| IsomorphismFpGroup            | 537   | 170.4  | 0.0      | 51.3    | 0.0       |

|                |     |       |       |      |      |
|----------------|-----|-------|-------|------|------|
| FindPModules   | 522 | 172.3 | 172.3 | 51.6 | 51.6 |
| FindPQuotients | 19  | 172.4 | 172.4 | 51.6 | 51.6 |
| LowIndexNormal | 1   | 172.4 | 172.4 | 51.6 | 51.6 |

**Group : Dih(10000)**

Searching up to index : 2000

How many normal groups are found : 23

Total Time in s : 199.5

| Function                      | Count | AbsT/s | ChildT/s | AbsS/gb | ChildS/gb |
|-------------------------------|-------|--------|----------|---------|-----------|
| ExponentSum                   | 169   | 0.0    | 0.0      | 0.0     | 0.0       |
| FindIntersections             | 20    | 0.0    | 0.0      | 0.0     | 0.0       |
| GModuleByMats                 | 116   | 0.0    | 0.0      | 0.0     | 0.0       |
| IsPowerOf                     | 1089  | 0.0    | 0.0      | 0.0     | 0.0       |
| Intersection                  | 158   | 0.0    | 0.0      | 0.0     | 0.0       |
| NaturalHomomorphismBySubspace | 28    | 0.0    | 0.0      | 0.0     | 0.0       |
| PullBackH                     | 28    | 0.0    | 0.0      | 0.0     | 0.0       |
| Core                          | 17    | 0.0    | 0.0      | 0.0     | 0.0       |
| LowIndexSubgroupsFpGroup      | 2     | 0.0    | 0.0      | 0.0     | 0.0       |
| NextPrimeInt                  | 1138  | 0.0    | 0.0      | 0.0     | 0.0       |
| MustCheckP                    | 1138  | 0.0    | 0.0      | 0.0     | 0.0       |
| PreImagesRepresentative       | 116   | 0.0    | 0.0      | 0.0     | 0.0       |
| FindTQuotients                | 1     | 0.0    | 0.0      | 0.0     | 0.0       |
| MinSubgroupSizes              | 1138  | 0.0    | 0.0      | 0.0     | 0.0       |
| Index                         | 5419  | 0.0    | 0.0      | 0.0     | 0.0       |
| SMTX_BasesMaximalSubmodules   | 26    | 0.0    | 0.0      | 0.0     | 0.0       |
| GeneratorsOfMagmaWithInverses | 16091 | 0.0    | 0.0      | 0.0     | 0.0       |
| Image                         | 4176  | 0.0    | 0.0      | 0.0     | 0.0       |
| IsSubgroup                    | 45    | 0.0    | 0.0      | 0.0     | 0.0       |
| AddGroup                      | 35    | 0.0    | 0.0      | 0.0     | 0.0       |
| GroupHomomorphismByImagesNC   | 1037  | 0.0    | 0.0      | 0.0     | 0.0       |
| PreImage                      | 78    | 0.2    | 0.0      | 0.0     | 0.0       |
| Kernel                        | 28    | 0.2    | 0.2      | 0.0     | 0.0       |
| EpimorphismQuotientSystem     | 914   | 0.3    | 0.0      | 0.0     | 0.0       |
| PQuotient                     | 1828  | 2.7    | 0.0      | 0.3     | 0.0       |
| IsomorphismFpGroup            | 933   | 195.8  | 0.0      | 58.2    | 0.0       |

|                |     |       |       |      |      |
|----------------|-----|-------|-------|------|------|
| FindPModules   | 916 | 199.4 | 199.4 | 58.7 | 58.7 |
| FindPQuotients | 21  | 199.5 | 199.5 | 58.7 | 58.7 |
| LowIndexNormal | 1   | 199.5 | 199.5 | 58.7 | 58.7 |

**Group : Dih(10000)**

Searching up to index : 4000

How many normal groups are found : 25

Total Time in s : 223.5

| Function                      | Count | AbsT/s | ChildT/s | AbsS/gb | ChildS/gb |
|-------------------------------|-------|--------|----------|---------|-----------|
| Intersection                  | 206   | 0.0    | 0.0      | 0.0     | 0.0       |
| ExponentSum                   | 183   | 0.0    | 0.0      | 0.0     | 0.0       |
| IsPowerOf                     | 1946  | 0.0    | 0.0      | 0.0     | 0.0       |
| FindIntersections             | 22    | 0.0    | 0.0      | 0.0     | 0.0       |
| GModuleByMats                 | 124   | 0.0    | 0.0      | 0.0     | 0.0       |
| Core                          | 23    | 0.0    | 0.0      | 0.0     | 0.0       |
| PreImagesRepresentative       | 124   | 0.0    | 0.0      | 0.0     | 0.0       |
| NaturalHomomorphismBySubspace | 30    | 0.0    | 0.0      | 0.0     | 0.0       |
| PullBackH                     | 30    | 0.0    | 0.0      | 0.0     | 0.0       |
| LowIndexSubgroupsFpGroup      | 2     | 0.0    | 0.0      | 0.0     | 0.0       |
| NextPrimeInt                  | 2042  | 0.0    | 0.0      | 0.0     | 0.0       |
| FindTQuotients                | 1     | 0.0    | 0.0      | 0.0     | 0.0       |
| Index                         | 9223  | 0.0    | 0.0      | 0.0     | 0.0       |
| MustCheckP                    | 2042  | 0.0    | 0.0      | 0.0     | 0.0       |
| GeneratorsOfMagmaWithInverses | 25953 | 0.0    | 0.0      | 0.0     | 0.0       |
| SMTX_BasesMaximalSubmodules   | 28    | 0.0    | 0.0      | 0.0     | 0.0       |
| MinSubgroupSizes              | 2042  | 0.0    | 0.0      | 0.0     | 0.0       |
| Image                         | 7088  | 0.0    | 0.0      | 0.0     | 0.0       |
| GroupHomomorphismByImagesNC   | 1766  | 0.1    | 0.0      | 0.0     | 0.0       |
| IsSubgroup                    | 51    | 0.1    | 0.0      | 0.0     | 0.0       |
| AddGroup                      | 40    | 0.1    | 0.1      | 0.0     | 0.0       |
| PreImage                      | 94    | 0.4    | 0.0      | 0.1     | 0.0       |
| Kernel                        | 30    | 0.4    | 0.4      | 0.1     | 0.1       |
| EpimorphismQuotientSystem     | 1633  | 0.5    | 0.1      | 0.1     | 0.0       |
| PQuotient                     | 3266  | 4.7    | 0.0      | 0.5     | 0.0       |
| IsomorphismFpGroup            | 1654  | 217.4  | 0.0      | 65.0    | 0.0       |

|                |      |       |       |      |      |
|----------------|------|-------|-------|------|------|
| FindPModules   | 1635 | 223.5 | 223.4 | 65.9 | 65.9 |
| FindPQuotients | 23   | 223.5 | 223.5 | 65.9 | 65.9 |
| LowIndexNormal | 1    | 223.5 | 223.5 | 65.9 | 65.9 |