

# FreeProductsExtendedProfile

July 16, 2018

**Group :**  $C_2 * C_3$

Searching up to index : 2500

How many normal groups are found : 527

Total Time in s : 489.4

Total Magma-Time in s : 402.63

Count	AbsT/s	ChildT/s	AbsS/mb	ChildS/mb	Function
1706	0.0	0.0	426.1	0.0	NextPrimeInt
5720	0.5	0.0	115321.2	399.2	GroupHomomorphismByImagesNC
35124	0.6	0.0	76630.1	0.0	GModuleByMats
863	1.0	0.0	302516.9	0.0	NaturalHomomorphismBySubspace
509862	1.1	0.0	208588.5	557.7	Index
1706	1.3	0.2	426060.3	96142.1	EpimorphismQuotientSystem
2382743	2.2	0.1	32865.7	0.0	GeneratorsOfMagmaWithInverses
3412	3.1	0.0	1271928.8	212.1	PQuotient
367184	5.3	0.3	1364671.0	14316.2	Intersection
2	5.4	0.0	1507012.8	702.1	LowIndexSubgroupsFpGroup
5032	6.9	5.1	1924278.3	1350617.7	Core
526	7.6	7.3	4146473.1	4118197.6	FindIntersections
313377	7.6	0.0	4404501.0	0.0	ExponentSum
189576	11.4	0.1	6256709.4	170.2	PreImagesRepresentative
1	13.0	13.0	3585311.4	3585308.7	FindTQuotients
501344	18.5	0.2	10947910.0	308.7	Image
863	21.1	4.2	10453869.4	2447787.6	PullBackH
1095	29.8	0.2	13426895.7	5335.9	IsomorphismFpGroup
11316	32.3	0.7	28872502.9	125753.9	PreImage
863	32.4	32.3	28877793.1	28870376.6	Kernel
994	59.7	0.1	17410602.3	24410.4	SMTX_BasesMaximalSubmodules

2620	87.1	0.2	72208864.7	1878.6	IsSubgroup
1059	289.6	88.2	244671000.4	72281750.6	AddGroup
527	468.7	464.7	332516964.9	331835131.2	FindPQuotients
1	489.4	489.4	340248749.7	340248749.5	LowIndexNormal

**Group :**  $C_2 * C_{12}$

Searching up to index : 150

How many normal groups are found : 355

Total Time in s : 52.3

Total Magma-Time in s : 270.79

Count	AbsT/s	ChildT/s	AbsS/mb	ChildS/mb	Function
494	0.0	0.0	71.7	0.0	NextPrimeInt
2	0.0	0.0	886.8	5.2	LowIndexSubgroupsFpGroup
22	0.0	0.0	1037.5	585.7	Core
1	0.0	0.0	8504.3	8503.9	FindTQuotients
8884	0.1	0.0	15072.3	0.0	GModuleByMats
119610	0.1	0.0	12332.6	262.6	Intersection
674	0.2	0.0	43580.2	0.0	NaturalHomomorphismBySubspace
3536	0.2	0.0	25900.4	230.8	GroupHomomorphismByImagesNC
494	0.2	0.1	59817.5	11312.8	EpimorphismQuotientSystem
49960	0.4	0.0	189119.3	0.0	ExponentSum
241234	0.5	0.0	61616.4	438.0	Index
35168	0.7	0.0	297714.1	71.9	PreImagesRepresentative
988	0.9	0.0	351018.0	63.8	PQuotient
1191496	1.1	0.0	14550.9	0.0	GeneratorsOfMagmaWithInverses
674	1.3	0.2	528605.3	111494.8	PullBackH
136128	1.8	0.0	459144.8	206.6	Image
1392	2.6	0.3	807320.2	49091.0	PreImage
674	2.6	2.6	813231.6	807411.2	Kernel
354	3.4	3.3	1137205.5	1113606.6	FindIntersections
711	3.5	0.0	1168530.3	2925.1	IsomorphismFpGroup
387	3.8	0.0	787452.6	7866.3	SMTX_BasesMaximalSubmodules
5858	14.9	0.3	6179214.6	3997.2	IsSubgroup
748	35.4	15.8	13708348.3	6211737.2	AddGroup
355	48.8	48.0	17276571.6	17194754.6	FindPQuotients
1	52.3	52.3	18422281.7	18422281.5	LowIndexNormal

**Group :**  $C_2 * C_4$

Searching up to index : 500

How many normal groups are found : 688

Total Time in s : 230.8

Total Magma-Time in s : 470.73

Count	AbsT/s	ChildT/s	AbsS/mb	ChildS/mb	Function
1182	0.0	0.0	197.4	0.0	NextPrimeInt
2	0.0	0.0	4821.7	18.9	LowIndexSubgroupsFpGroup
199	0.0	0.0	14171.6	9242.5	Core
1	0.2	0.2	43149.2	43148.0	FindTQuotients
22438	0.3	0.0	39335.8	0.0	GModuleByMats
7311	0.5	0.0	78236.1	485.1	GroupHomomorphismByImagesNC
1182	0.6	0.1	199877.7	49581.2	EpimorphismQuotientSystem
1362	0.7	0.0	191309.8	0.0	NaturalHomomorphismBySubspace
459746	0.7	0.0	45647.7	536.0	Intersection
892357	1.4	0.0	189589.7	871.7	Index
2268212	2.2	0.0	21837.8	0.0	GeneratorsOfMagmaWithInverses
2364	2.7	0.0	1058974.3	156.4	PQuotient
210644	3.0	0.0	1541180.2	0.0	ExponentSum
114726	4.8	0.0	2147685.8	165.4	PreImagesRepresentative
687	8.5	7.9	3439052.5	3348217.9	FindIntersections
374430	9.5	0.2	4238645.1	421.9	Image
1362	10.1	1.7	4598218.2	916524.9	PullBackH
2940	15.1	0.9	7186768.3	128802.2	PreImage
1362	15.2	15.1	7198461.1	7186808.8	Kernel
1377	15.8	0.2	6772273.2	5999.5	IsomorphismFpGroup
955	32.1	0.1	12714013.1	17363.1	SMTX_BasesMaximalSubmodules
6166	44.6	0.4	29408227.3	4373.4	IsSubgroup
1522	133.7	46.7	78267843.4	29501746.3	AddGroup
688	222.0	219.7	114979735.8	114702852.0	FindPQuotients
1	230.8	230.8	118461937.7	118461937.6	LowIndexNormal

**Group :**  $C_2 * C_5$

Searching up to index : 2000

How many normal groups are found : 205

Total Time in s : 509.3

Total Magma-Time in s : 266.68

Count	AbsT/s	ChildT/s	AbsS/mb	ChildS/mb	Function
894	0.0	0.0	228.2	0.0	NextPrimeInt
2018	0.2	0.0	57022.8	151.9	GroupHomomorphismByImagesNC
204	0.2	0.1	72514.4	69890.7	FindIntersections
18352	0.2	0.0	31330.4	0.0	GModuleByMats
231	0.5	0.0	167224.8	0.0	NaturalHomomorphismBySubspace
295110	0.6	0.0	71300.6	140.9	Index
894	0.9	0.1	243966.2	51226.9	EpimorphismQuotientSystem
992288	0.9	0.0	14646.6	0.0	GeneratorsOfMagmaWithInverses
2	0.9	0.0	284424.5	296.9	LowIndexSubgroupsFpGroup
1788	1.6	0.0	669172.7	112.1	PQuotient
84342	2.1	0.1	443942.9	6346.5	Intersection
3194	2.8	2.1	636644.6	444482.9	Core
1	5.0	5.0	1260428.8	1260426.3	FindTQuotients
133540	5.0	0.0	2822318.6	0.0	ExponentSum
4566	8.1	0.2	4943314.5	40821.8	PreImage
231	8.2	8.1	4944437.3	4942425.5	Kernel
97152	8.2	0.0	4254176.7	57.8	PreImagesRepresentative
244642	10.0	0.1	4474399.1	96.7	Image
231	13.2	2.6	6837095.9	1462107.5	PullBackH
411	23.1	0.1	10695946.2	2215.6	IsomorphismFpGroup
1798	42.3	0.1	28810211.3	1211.7	IsSubgroup
369	95.4	42.5	66930834.3	28817328.8	AddGroup
349	278.4	0.1	84454174.7	12933.5	SMTX_BasesMaximalSubmodules
205	504.1	441.6	211439303.6	184674539.2	FindPQuotients
1	509.3	509.3	212772247.0	212772246.9	LowIndexNormal

**Group :**  $C_2 * C_6$

Searching up to index : 500

How many normal groups are found : 862

Total Time in s : 357.0

Total Magma-Time in s : 917.5

Count	AbsT/s	ChildT/s	AbsS/mb	ChildS/mb	Function
1344	0.0	0.0	220.6	0.0	NextPrimeInt
2	0.0	0.0	10412.0	28.7	LowIndexSubgroupsFpGroup
400	0.1	0.1	34829.6	23136.0	Core
31718	0.3	0.0	51711.9	0.0	GModuleByMats
1	0.5	0.5	128797.6	128796.0	FindTQuotients
8857	0.7	0.0	102750.4	602.6	GroupHomomorphismByImagesNC
1344	0.7	0.1	239400.9	67377.3	EpimorphismQuotientSystem
1665	0.8	0.0	224346.6	0.0	NaturalHomomorphismBySubspace
728852	1.1	0.0	78013.7	955.5	Intersection
1387327	2.0	0.0	265618.9	1099.8	Index
278083	3.7	0.0	1945319.0	0.0	ExponentSum
3856753	3.8	0.2	36074.8	0.0	GeneratorsOfMagmaWithInverses
2688	4.2	0.0	1850049.2	176.8	PQuotient
135018	5.2	0.1	2452322.9	188.3	PreImagesRepresentative
489954	10.3	0.2	3956803.1	518.8	Image
1665	13.4	2.4	5882019.2	1246785.0	PullBackH
861	16.9	16.1	6736019.7	6607644.9	FindIntersections
3742	17.9	1.1	8902838.0	164198.7	PreImage
1665	18.1	17.9	8917091.0	8902836.8	Kernel
1725	23.8	0.3	9749869.8	7687.4	IsomorphismFpGroup
1090	29.9	0.1	8627638.2	25357.6	SMTX_BasesMaximalSubmodules
12381	91.1	0.9	58802795.5	8435.3	IsSubgroup
1896	241.5	94.4	136912017.4	58949198.8	AddGroup
862	339.4	334.5	174318324.6	172907118.4	FindPQuotients
1	357.0	357.0	181183142.2	181183142.0	LowIndexNormal

**Group :**  $C_2 * C_7$

Searching up to index : 1000

How many normal groups are found : 63

Total Time in s : 19.4

Total Magma-Time in s : 46.2

Count	AbsT/s	ChildT/s	AbsS/mb	ChildS/mb	Function
385	0.0	0.0	98.6	0.0	NextPrimeInt
62	0.0	0.0	5531.7	5320.0	FindIntersections

2716	0.0	0.0	4359.2	0.0	GModuleByMats
679	0.0	0.0	10705.9	44.9	GroupHomomorphismByImagesNC
10756	0.0	0.0	8558.2	35.9	Index
59	0.0	0.0	18936.0	0.0	NaturalHomomorphismBySubspace
2	0.0	0.0	24189.4	26.9	LowIndexSubgroupsFpGroup
142460	0.1	0.0	2112.6	0.0	GeneratorsOfMagmaWithInverses
9180	0.2	0.0	49623.1	818.9	Intersection
518	0.3	0.2	71739.2	49733.9	Core
385	0.3	0.0	50837.9	9232.9	EpimorphismQuotientSystem
19748	0.4	0.0	256102.9	0.0	ExponentSum
1	0.4	0.4	116419.0	116418.3	FindTQuotients
770	0.6	0.0	290744.9	48.5	PQuotient
13316	0.7	0.0	373811.0	15.4	PreImagesRepresentative
34834	1.0	0.0	422833.9	24.5	Image
59	1.2	1.2	431879.1	431332.0	Kernel
634	1.2	0.0	431419.7	7143.8	PreImage
59	1.3	0.2	660926.2	140346.1	PullBackH
178	2.1	0.0	1595289.1	127.5	IsSubgroup
127	2.8	0.0	1232822.1	601.1	IsomorphismFpGroup
92	3.4	0.0	1211486.6	1843.8	SMTX_BasesMaximalSubmodules
83	6.2	2.1	4508563.8	1596117.3	AddGroup
63	18.9	18.0	9666875.1	9297807.9	FindPQuotients
1	19.4	19.4	9788826.0	9788825.9	LowIndexNormal

**Group :**  $C_2 * C_8$

Searching up to index : 500

How many normal groups are found : 1187

Total Time in s : 1104.9

Total Magma-Time in s : 2765.47

Count	AbsT/s	ChildT/s	AbsS/mb	ChildS/mb	Function
1581	0.0	0.0	248.7	0.0	NextPrimeInt
2	0.0	0.0	11834.3	35.1	LowIndexSubgroupsFpGroup
415	0.1	0.1	36066.7	23606.8	Core
1	0.6	0.6	148912.3	148910.5	FindTQuotients
57544	0.7	0.0	110941.3	0.0	GModuleByMats

12697	1.1	0.0	152071.4	854.0	GroupHomomorphismByImagesNC
1581	1.3	0.2	350492.1	97217.9	EpimorphismQuotientSystem
1380292	1.7	0.0	132689.4	1268.9	Intersection
2484	2.2	0.0	598317.4	0.0	NaturalHomomorphismBySubspace
3162	3.6	0.0	1432427.8	208.6	PQuotient
2896544	3.9	0.2	499485.9	1581.3	Index
511527	10.0	0.0	5344888.5	0.0	ExponentSum
11258618	11.2	0.4	84320.9	0.0	GeneratorsOfMagmaWithInverses
319824	15.7	0.3	7320069.4	242.6	PreImagesRepresentative
1131466	27.7	0.6	11066595.7	756.2	Image
2484	34.3	6.1	15886074.0	3281383.7	PullBackH
5400	40.2	1.9	17879462.0	280783.3	PreImage
2484	40.5	40.2	17900645.2	17879457.6	Kernel
1186	44.7	42.5	19500581.5	19134049.4	FindIntersections
2375	82.4	0.5	28461213.5	10703.9	IsomorphismFpGroup
1337	114.0	0.3	45286404.8	52500.3	SMTX_BasesMaximalSubmodules
39611	317.2	3.6	180466452.1	26544.1	IsSubgroup
2779	755.2	325.6	390075690.2	180771410.5	AddGroup
1187	1059.5	1040.1	508278176.9	501384876.7	FindPQuotients
1	1104.9	1104.9	527927671.0	527927670.8	LowIndexNormal

**Group :**  $C_2 * C_{10}$

Searching up to index : 500

How many normal groups are found : 469

Total Time in s : 116.9

Total Magma-Time in s : 243.42

Count	AbsT/s	ChildT/s	AbsS/mb	ChildS/mb	Function
951	0.0	0.0	165.4	0.0	NextPrimeInt
2	0.0	0.0	6166.3	17.8	LowIndexSubgroupsFpGroup
188	0.0	0.0	19275.4	12907.2	Core
1	0.1	0.1	34255.5	34254.8	FindTQuotients
13428	0.1	0.0	24110.8	0.0	GModuleByMats
877	0.3	0.0	93159.3	0.0	NaturalHomomorphismBySubspace
214366	0.3	0.0	28344.1	390.6	Intersection
4919	0.3	0.0	68198.1	313.4	GroupHomomorphismByImagesNC

951	0.4	0.1	160654.0	49390.7	EpimorphismQuotientSystem
384279	0.8	0.0	110331.8	555.5	Index
1056580	1.0	0.0	11253.9	0.0	GeneratorsOfMagmaWithInverses
160569	1.9	0.0	976604.2	0.0	ExponentSum
468	2.2	1.9	780806.6	751529.9	FindIntersections
68040	3.3	0.0	1431611.2	125.9	PreImagesRepresentative
1902	4.0	0.0	1694040.2	126.1	PQuotient
228110	6.1	0.1	2219190.4	276.8	Image
877	7.3	1.1	3184447.1	578730.8	PullBackH
1946	10.2	0.5	5285133.5	88832.2	PreImage
877	10.2	10.2	5292731.5	5285183.7	Kernel
718	12.3	0.0	3366405.6	10315.0	SMTX_BasesMaximalSubmodules
2424	14.9	0.1	11013164.5	1716.0	IsSubgroup
939	18.2	0.1	7122876.4	4179.5	IsomorphismFpGroup
944	50.5	15.8	32259519.6	11052911.2	AddGroup
469	114.5	112.4	56929304.0	56495626.6	FindPQuotients
1	116.9	116.9	57744366.4	57744366.2	LowIndexNormal

**Group :**  $C_2 * C_{11}$

Searching up to index : 1000

How many normal groups are found : 21

Total Time in s : 10.3

Total Magma-Time in s : 58.27

Count	AbsT/s	ChildT/s	AbsS/mb	ChildS/mb	Function
317	0.0	0.0	87.6	0.0	NextPrimeInt
17	0.0	0.0	790.3	0.0	NaturalHomomorphismBySubspace
20	0.0	0.0	36.4	17.5	FindIntersections
378	0.0	0.0	675.3	0.0	GModuleByMats
401	0.0	0.0	4246.0	22.6	GroupHomomorphismByImagesNC
3602	0.0	0.0	15714.7	0.0	ExponentSum
17	0.0	0.0	33413.5	33224.8	Kernel
1980	0.0	0.0	31306.3	5.4	PreImagesRepresentative
17	0.0	0.0	26595.1	6561.8	PullBackH
6526	0.0	0.0	34699.7	1119.1	PreImage
5462	0.1	0.0	32261.1	7.0	Image



30108	0.1	0.0	18863.8	9.5	Index
317	0.1	0.0	28940.1	3837.9	EpimorphismQuotientSystem
76	0.4	0.0	275722.2	54.1	IsSubgroup
606942	0.5	0.0	18978.6	0.0	GeneratorsOfMagmaWithInverses
634	0.5	0.0	242477.3	40.0	PQuotient
34	0.6	0.0	205265.1	236.3	SMTX_BasesMaximalSubmodules
43	0.7	0.0	335822.6	191.6	IsomorphismFpGroup
29	0.8	0.4	642129.7	275834.2	AddGroup
2	1.3	0.0	335328.1	407.2	LowIndexSubgroupsFpGroup
21	3.3	3.3	1585850.6	1580533.9	FindPQuotients
85746	3.6	0.2	830280.9	12171.1	Intersection
6494	5.4	3.8	1201105.6	836388.0	Core
1	6.9	6.9	1564042.2	1564041.7	FindTQuotients
1	10.3	10.3	3149929.5	3149929.4	LowIndexNormal