Rank-65569 over GF(16)

January 15, 2021

The equation

The equation of the surface is :

$$X_1^3 + X_2^3 + X_3^3 + X_0^2X_1 + X_0X_1X_2 = 0$$

(0, 1, 1, 1, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0)
The point rank of the equation over GF(16) is 286401061

General information

Number of lines	3
Number of points	241
Number of singular points	0
Number of Eckardt points	1
Number of double points	0
Number of single points	48
Number of points off lines	192
Number of Hesse planes	0
Number of axes	0
Type of points on lines	17^3
Type of lines on points	3, 1^{48}, 0^{192}

Singular Points

The surface has 0 singular points:

The 3 Lines

The lines and their Pluecker coordinates are:

$$\ell_0 = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix}_{257} = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix}_{257} = \mathbf{Pl}(0,0,1,0,1,0)_{320}$$

$$\ell_1 = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & \delta^5 \end{bmatrix}_{267} = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 11 \end{bmatrix}_{267} = \mathbf{Pl}(0,0,10,0,1,0)_{599}$$

$$\ell_2 = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & \delta^{10} \end{bmatrix}_{266} = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 10 \end{bmatrix}_{266} = \mathbf{Pl}(0,0,11,0,1,0)_{630}$$

Rank of lines: (257, 267, 266)
Rank of points on Klein quadric: (320, 599, 630)

Eckardt Points

The surface has 1 Eckardt points:
$0 : P_0 = \mathbf{P}(1,0,0,0) = \mathbf{P}(1,0,0,0)$.

Double Points

The surface has 0 Double points:
The double points on the surface are:

Single Points

The surface has 48 single points:
The single points on the surface are:

$0 : P_{530} = (0,0,1,1)$ lies on line ℓ_0
$1 : P_{531} = (1,0,1,1)$ lies on line ℓ_0
$2 : P_{532} = (2,0,1,1)$ lies on line ℓ_0
$3 : P_{533} = (3,0,1,1)$ lies on line ℓ_0
$4 : P_{534} = (4,0,1,1)$ lies on line ℓ_0
$5 : P_{535} = (5,0,1,1)$ lies on line ℓ_0
$6 : P_{536} = (6,0,1,1)$ lies on line ℓ_0
$7 : P_{537} = (7,0,1,1)$ lies on line ℓ_0
$8 : P_{538} = (8,0,1,1)$ lies on line ℓ_0
$9 : P_{539} = (9,0,1,1)$ lies on line ℓ_0
$10 : P_{540} = (10,0,1,1)$ lies on line ℓ_0
$11 : P_{541} = (11,0,1,1)$ lies on line ℓ_0
$12 : P_{542} = (12,0,1,1)$ lies on line ℓ_0
$13 : P_{543} = (13,0,1,1)$ lies on line ℓ_0
$14 : P_{544} = (14,0,1,1)$ lies on line ℓ_0
$15 : P_{545} = (15,0,1,1)$ lies on line ℓ_0
$16 : P_{2833} = (0,0,10,1)$ lies on line ℓ_1
$17 : P_{2834} = (1,0,10,1)$ lies on line ℓ_1
$18 : P_{2835} = (2,0,10,1)$ lies on line ℓ_1
$19 : P_{2836} = (3,0,10,1)$ lies on line ℓ_1
$20 : P_{2837} = (4,0,10,1)$ lies on line ℓ_1
$21 : P_{2838} = (5,0,10,1)$ lies on line ℓ_1
$22 : P_{2839} = (6,0,10,1)$ lies on line ℓ_1
$23 : P_{2840} = (7,0,10,1)$ lies on line ℓ_1
$24 : P_{2841} = (8,0,10,1)$ lies on line ℓ_1
$25 : P_{2842} = (9,0,10,1)$ lies on line ℓ_1
$26 : P_{2843} = (10,0,10,1)$ lies on line ℓ_1
$27 : P_{2844} = (11,0,10,1)$ lies on line ℓ_1
$28 : P_{2845} = (12,0,10,1)$ lies on line ℓ_1
$29 : P_{2846} = (13,0,10,1)$ lies on line ℓ_1
$30 : P_{2847} = (14,0,10,1)$ lies on line ℓ_1
$31 : P_{2848} = (15,0,10,1)$ lies on line ℓ_1
$32 : P_{3089} = (0,0,11,1)$ lies on line ℓ_2
$33 : P_{3090} = (1,0,11,1)$ lies on line ℓ_2
$34 : P_{3091} = (2,0,11,1)$ lies on line ℓ_2
$35 : P_{3092} = (3,0,11,1)$ lies on line ℓ_2
$36 : P_{3093} = (4,0,11,1)$ lies on line ℓ_2
$37 : P_{3094} = (5,0,11,1)$ lies on line ℓ_2
$38 : P_{3095} = (6,0,11,1)$ lies on line ℓ_2
$39 : P_{3096} = (7,0,11,1)$ lies on line ℓ_2
$40 : P_{3097} = (8,0,11,1)$ lies on line ℓ_2
$41 : P_{3098} = (9,0,11,1)$ lies on line ℓ_2
$42 : P_{3099} = (10,0,11,1)$ lies on line ℓ_2
$43 : P_{3100} = (11,0,11,1)$ lies on line ℓ_2
$44 : P_{3101} = (12,0,11,1)$ lies on line ℓ_2
$45 : P_{3102} = (13,0,11,1)$ lies on line ℓ_2
$46 : P_{3103} = (14,0,11,1)$ lies on line ℓ_2
$47 : P_{3104} = (15,0,11,1)$ lies on line ℓ_2

The single points on the surface are:

Points on surface but on no line

The surface has 192 points not on any line:
The points on the surface but not on lines are:

0 : $P_{5} = (1, 1, 0, 0)$
1 : $P_{35} = (0, 1, 1, 0)$
2 : $P_{36} = (1, 1, 1, 0)$
3 : $P_{71} = (4, 3, 1, 0)$
4 : $P_{72} = (5, 3, 1, 0)$
5 : $P_{107} = (8, 5, 1, 0)$
6 : $P_{108} = (9, 5, 1, 0)$
7 : $P_{161} = (14, 8, 1, 0)$
8 : $P_{162} = (15, 8, 1, 0)$
9 : $P_{179} = (0, 10, 1, 0)$
10 : $P_{180} = (1, 10, 1, 0)$
11 : $P_{195} = (0, 11, 1, 0)$
12 : $P_{196} = (1, 11, 1, 0)$
13 : $P_{261} = (2, 15, 1, 0)$
14 : $P_{262} = (3, 15, 1, 0)$
15 : $P_{290} = (0, 1, 0, 1)$
16 : $P_{311} = (5, 2, 0, 1)$
17 : $P_{328} = (6, 3, 0, 1)$
18 : $P_{346} = (8, 4, 0, 1)$
19 : $P_{367} = (13, 5, 0, 1)$
20 : $P_{374} = (4, 6, 0, 1)$
21 : $P_{400} = (14, 7, 0, 1)$
22 : $P_{409} = (7, 8, 0, 1)$
23 : $P_{433} = (15, 9, 0, 1)$
24 : $P_{434} = (0, 10, 0, 1)$
25 : $P_{450} = (0, 11, 0, 1)$
26 : $P_{468} = (2, 12, 0, 1)$
27 : $P_{491} = (9, 13, 0, 1)$
28 : $P_{501} = (3, 14, 0, 1)$
29 : $P_{526} = (12, 15, 0, 1)$
30 : $P_{555} = (10, 1, 1, 1)$
31 : $P_{556} = (11, 1, 1, 1)$
32 : $P_{629} = (4, 6, 1, 1)$
33 : $P_{630} = (5, 6, 1, 1)$
34 : $P_{655} = (14, 7, 1, 1)$
35 : $P_{656} = (15, 7, 1, 1)$
36 : $P_{695} = (6, 10, 1, 1)$
37 : $P_{696} = (7, 10, 1, 1)$
38 : $P_{717} = (12, 11, 1, 1)$
39 : $P_{718} = (13, 11, 1, 1)$
40 : $P_{723} = (2, 12, 1, 1)$
41 : $P_{724} = (3, 12, 1, 1)$
42 : $P_{745} = (8, 13, 1, 1)$
43 : $P_{746} = (9, 13, 1, 1)$
44 : $P_{838} = (5, 3, 2, 1)$
45 : $P_{840} = (7, 3, 2, 1)$
46 : $P_{870} = (5, 5, 2, 1)$
47 : $P_{872} = (7, 5, 2, 1)$
48 : $P_{886} = (5, 6, 2, 1)$
49 : $P_{888} = (7, 6, 2, 1)$
50 : $P_{969} = (8, 11, 2, 1)$
51 : $P_{971} = (10, 11, 2, 1)$
52 : $P_{1034} = (9, 15, 2, 1)$
53 : $P_{1036} = (11, 15, 2, 1)$
54 : $P_{1142} = (5, 6, 3, 1)$
55 : $P_{1143} = (6, 6, 3, 1)$
56 : $P_{1161} = (8, 7, 3, 1)$
57 : $P_{1164} = (11, 7, 3, 1)$
58 : $P_{1190} = (5, 9, 3, 1)$
59 : $P_{1191} = (6, 9, 3, 1)$
60 : $P_{1218} = (1, 11, 3, 1)$
61 : $P_{1219} = (2, 11, 3, 1)$
62 : $P_{1286} = (5, 15, 3, 1)$
63 : $P_{1287} = (6, 15, 3, 1)$
64 : $P_{1355} = (10, 3, 4, 1)$
65 : $P_{1359} = (14, 3, 4, 1)$
66 : $P_{1385} = (8, 5, 4, 1)$
67 : $P_{1389} = (12, 5, 4, 1)$
68 : $P_{1433} = (8, 8, 4, 1)$
69 : $P_{1437} = (12, 8, 4, 1)$
70 : $P_{1468} = (11, 10, 4, 1)$
71 : $P_{1472} = (15, 10, 4, 1)$
72 : $P_{1513} = (8, 13, 4, 1)$
73 : $P_{1517} = (12, 13, 4, 1)$
74 : $P_{1609} = (8, 3, 5, 1)$
75 : $P_{1614} = (13, 3, 5, 1)$
76 : $P_{1714} = (1, 10, 5, 1)$
77 : $P_{1717} = (4, 10, 5, 1)$
78 : $P_{1755} = (10, 12, 5, 1)$
79 : $P_{1760} = (15, 12, 5, 1)$
80 : $P_{1769} = (8, 13, 5, 1)$
81 : $P_{1774} = (13, 13, 5, 1)$
82 : $P_{1785} = (8, 14, 5, 1)$
83 : $P_{1790} = (13, 14, 5, 1)$
84 : $P_{1835} = (10, 1, 6, 1)$
85 : $P_{1837} = (12, 1, 6, 1)$
86 : $P_{1875} = (2, 4, 6, 1)$
87 : $P_{1877} = (4, 4, 6, 1)$
88 : $P_{1955} = (2, 9, 6, 1)$
89 : $P_{1957} = (4, 9, 6, 1)$
90 : $P_{2019} = (2, 13, 6, 1)$
91 : $P_{2021} = (4, 13, 6, 1)$
92 : $P_{2034} = (1, 14, 6, 1)$
93 : $P_{2040} = (7, 14, 6, 1)$
94 : $P_{2091} = (10, 1, 7, 1)$
95 : $P_{2094} = (13, 1, 7, 1)$

96 : $P_{2106} = (9, 2, 7, 1)$
97 : $P_{2111} = (14, 2, 7, 1)$
98 : $P_{2130} = (1, 4, 7, 1)$
99 : $P_{2135} = (6, 4, 7, 1)$
100 : $P_{2266} = (9, 12, 7, 1)$
101 : $P_{2271} = (14, 12, 7, 1)$
102 : $P_{2298} = (9, 14, 7, 1)$
103 : $P_{2303} = (14, 14, 7, 1)$
104 : $P_{2360} = (7, 2, 8, 1)$
105 : $P_{2368} = (15, 2, 8, 1)$
106 : $P_{2408} = (7, 5, 8, 1)$
107 : $P_{2416} = (15, 5, 8, 1)$
108 : $P_{2420} = (3, 6, 8, 1)$
109 : $P_{2428} = (11, 6, 8, 1)$
110 : $P_{2440} = (7, 7, 8, 1)$
111 : $P_{2448} = (15, 7, 8, 1)$
112 : $P_{2498} = (1, 11, 8, 1)$
113 : $P_{2506} = (9, 11, 8, 1)$
114 : $P_{2659} = (2, 5, 9, 1)$
115 : $P_{2668} = (11, 5, 9, 1)$
116 : $P_{2695} = (6, 7, 9, 1)$
117 : $P_{2704} = (15, 7, 9, 1)$
118 : $P_{2711} = (6, 8, 9, 1)$
119 : $P_{2720} = (15, 8, 9, 1)$
120 : $P_{2756} = (3, 11, 9, 1)$
121 : $P_{2763} = (10, 11, 9, 1)$
122 : $P_{2823} = (6, 15, 9, 1)$
123 : $P_{2832} = (15, 15, 9, 1)$
124 : $P_{2854} = (5, 1, 10, 1)$
125 : $P_{2864} = (15, 1, 10, 1)$
126 : $P_{2899} = (2, 4, 10, 1)$
127 : $P_{2905} = (8, 4, 10, 1)$
128 : $P_{2920} = (7, 5, 10, 1)$
129 : $P_{2926} = (13, 5, 10, 1)$
130 : $P_{2994} = (1, 10, 10, 1)$
131 : $P_{3004} = (11, 10, 10, 1)$
132 : $P_{3013} = (4, 11, 10, 1)$
133 : $P_{3023} = (14, 11, 10, 1)$
134 : $P_{3060} = (3, 14, 10, 1)$
135 : $P_{3066} = (9, 14, 10, 1)$
136 : $P_{3079} = (6, 15, 10, 1)$
137 : $P_{3085} = (12, 15, 10, 1)$
138 : $P_{3108} = (3, 1, 11, 1)$
139 : $P_{3113} = (8, 1, 11, 1)$
140 : $P_{3126} = (5, 2, 11, 1)$
141 : $P_{3135} = (14, 2, 11, 1)$
142 : $P_{3143} = (6, 3, 11, 1)$
143 : $P_{3150} = (13, 3, 11, 1)$
144 : $P_{3224} = (7, 8, 11, 1)$
145 : $P_{3229} = (12, 8, 11, 1)$
146 : $P_{3237} = (4, 9, 11, 1)$
147 : $P_{3248} = (15, 9, 11, 1)$
148 : $P_{3251} = (2, 10, 11, 1)$
149 : $P_{3258} = (9, 10, 11, 1)$
150 : $P_{3266} = (1, 11, 11, 1)$
151 : $P_{3275} = (10, 11, 11, 1)$
152 : $P_{3368} = (7, 1, 12, 1)$
153 : $P_{3372} = (11, 1, 12, 1)$
154 : $P_{3379} = (2, 2, 12, 1)$
155 : $P_{3391} = (14, 2, 12, 1)$
156 : $P_{3411} = (2, 4, 12, 1)$
157 : $P_{3423} = (14, 4, 12, 1)$
158 : $P_{3443} = (2, 6, 12, 1)$
159 : $P_{3455} = (14, 6, 12, 1)$
160 : $P_{3490} = (1, 9, 12, 1)$
161 : $P_{3502} = (13, 9, 12, 1)$
162 : $P_{3623} = (6, 1, 13, 1)$
163 : $P_{3628} = (11, 1, 13, 1)$
164 : $P_{3634} = (1, 2, 13, 1)$
165 : $P_{3645} = (12, 2, 13, 1)$
166 : $P_{3717} = (4, 7, 13, 1)$
167 : $P_{3722} = (9, 7, 13, 1)$
168 : $P_{3749} = (4, 9, 13, 1)$
169 : $P_{3754} = (9, 9, 13, 1)$
170 : $P_{3829} = (4, 14, 13, 1)$
171 : $P_{3834} = (9, 14, 13, 1)$
172 : $P_{3908} = (3, 3, 14, 1)$
173 : $P_{3918} = (13, 3, 14, 1)$
174 : $P_{3989} = (4, 8, 14, 1)$
175 : $P_{3995} = (10, 8, 14, 1)$
176 : $P_{4022} = (5, 10, 14, 1)$
177 : $P_{4028} = (11, 10, 14, 1)$
178 : $P_{4052} = (3, 12, 14, 1)$
179 : $P_{4062} = (13, 12, 14, 1)$
180 : $P_{4100} = (3, 15, 14, 1)$
181 : $P_{4110} = (13, 15, 14, 1)$
182 : $P_{4180} = (3, 4, 15, 1)$
183 : $P_{4189} = (12, 4, 15, 1)$
184 : $P_{4244} = (3, 8, 15, 1)$
185 : $P_{4253} = (12, 8, 15, 1)$
186 : $P_{4274} = (1, 10, 15, 1)$
187 : $P_{4287} = (14, 10, 15, 1)$
188 : $P_{4308} = (3, 12, 15, 1)$
189 : $P_{4317} = (12, 12, 15, 1)$
190 : $P_{4326} = (5, 13, 15, 1)$
191 : $P_{4331} = (10, 13, 15, 1)$

Line Intersection Graph

	0 1 2
0	0 1 1
1	1 0 1
2	1 1 0

Neighbor sets in the line intersection graph:
Line 0 intersects

Line	ℓ_1	ℓ_2
in point	P_0	P_0

Line 1 intersects

Line	ℓ_0	ℓ_2
in point	P_0	P_0

Line 2 intersects

Line	ℓ_0	ℓ_1
in point	P_0	P_0

The surface has 241 points:
The points on the surface are:

0 : $P_0 = (1, 0, 0, 0)$
1 : $P_5 = (1, 1, 0, 0)$
2 : $P_{35} = (0, 1, 1, 0)$
3 : $P_{36} = (1, 1, 1, 0)$
4 : $P_{71} = (4, 3, 1, 0)$
5 : $P_{72} = (5, 3, 1, 0)$
6 : $P_{107} = (8, 5, 1, 0)$
7 : $P_{108} = (9, 5, 1, 0)$
8 : $P_{161} = (14, 8, 1, 0)$
9 : $P_{162} = (15, 8, 1, 0)$
10 : $P_{179} = (0, 10, 1, 0)$
11 : $P_{180} = (1, 10, 1, 0)$
12 : $P_{195} = (0, 11, 1, 0)$
13 : $P_{196} = (1, 11, 1, 0)$
14 : $P_{261} = (2, 15, 1, 0)$
15 : $P_{262} = (3, 15, 1, 0)$
16 : $P_{290} = (0, 1, 0, 1)$
17 : $P_{311} = (5, 2, 0, 1)$
18 : $P_{328} = (6, 3, 0, 1)$
19 : $P_{346} = (8, 4, 0, 1)$
20 : $P_{367} = (13, 5, 0, 1)$
21 : $P_{374} = (4, 6, 0, 1)$
22 : $P_{400} = (14, 7, 0, 1)$
23 : $P_{409} = (7, 8, 0, 1)$
24 : $P_{433} = (15, 9, 0, 1)$
25 : $P_{434} = (0, 10, 0, 1)$
26 : $P_{450} = (0, 11, 0, 1)$
27 : $P_{468} = (2, 12, 0, 1)$
28 : $P_{491} = (9, 13, 0, 1)$
29 : $P_{501} = (3, 14, 0, 1)$
30 : $P_{526} = (12, 15, 0, 1)$
31 : $P_{530} = (0, 0, 1, 1)$
32 : $P_{531} = (1, 0, 1, 1)$
33 : $P_{532} = (2, 0, 1, 1)$
34 : $P_{533} = (3, 0, 1, 1)$
35 : $P_{534} = (4, 0, 1, 1)$
36 : $P_{535} = (5, 0, 1, 1)$
37 : $P_{536} = (6, 0, 1, 1)$
38 : $P_{537} = (7, 0, 1, 1)$
39 : $P_{538} = (8, 0, 1, 1)$
40 : $P_{539} = (9, 0, 1, 1)$
41 : $P_{540} = (10, 0, 1, 1)$
42 : $P_{541} = (11, 0, 1, 1)$
43 : $P_{542} = (12, 0, 1, 1)$
44 : $P_{543} = (13, 0, 1, 1)$
45 : $P_{544} = (14, 0, 1, 1)$
46 : $P_{545} = (15, 0, 1, 1)$
47 : $P_{555} = (10, 1, 1, 1)$
48 : $P_{556} = (11, 1, 1, 1)$
49 : $P_{629} = (4, 6, 1, 1)$
50 : $P_{630} = (5, 6, 1, 1)$
51 : $P_{655} = (14, 7, 1, 1)$
52 : $P_{656} = (15, 7, 1, 1)$
53 : $P_{695} = (6, 10, 1, 1)$
54 : $P_{696} = (7, 10, 1, 1)$
55 : $P_{717} = (12, 11, 1, 1)$
56 : $P_{718} = (13, 11, 1, 1)$
57 : $P_{723} = (2, 12, 1, 1)$
58 : $P_{724} = (3, 12, 1, 1)$
59 : $P_{745} = (8, 13, 1, 1)$
60 : $P_{746} = (9, 13, 1, 1)$
61 : $P_{838} = (5, 3, 2, 1)$
62 : $P_{840} = (7, 3, 2, 1)$
63 : $P_{870} = (5, 5, 2, 1)$
64 : $P_{872} = (7, 5, 2, 1)$
65 : $P_{886} = (5, 6, 2, 1)$
66 : $P_{888} = (7, 6, 2, 1)$
67 : $P_{969} = (8, 11, 2, 1)$
68 : $P_{971} = (10, 11, 2, 1)$
69 : $P_{1034} = (9, 15, 2, 1)$
70 : $P_{1036} = (11, 15, 2, 1)$
71 : $P_{1142} = (5, 6, 3, 1)$
72 : $P_{1143} = (6, 6, 3, 1)$
73 : $P_{1161} = (8, 7, 3, 1)$
74 : $P_{1164} = (11, 7, 3, 1)$
75 : $P_{1190} = (5, 9, 3, 1)$
76 : $P_{1191} = (6, 9, 3, 1)$
77 : $P_{1218} = (1, 11, 3, 1)$
78 : $P_{1219} = (2, 11, 3, 1)$
79 : $P_{1286} = (5, 15, 3, 1)$
80 : $P_{1287} = (6, 15, 3, 1)$
81 : $P_{1355} = (10, 3, 4, 1)$
82 : $P_{1359} = (14, 3, 4, 1)$
83 : $P_{1385} = (8, 5, 4, 1)$
84 : $P_{1389} = (12, 5, 4, 1)$
85 : $P_{1433} = (8, 8, 4, 1)$
86 : $P_{1437} = (12, 8, 4, 1)$
87 : $P_{1468} = (11, 10, 4, 1)$
88 : $P_{1472} = (15, 10, 4, 1)$
89 : $P_{1513} = (8, 13, 4, 1)$
90 : $P_{1517} = (12, 13, 4, 1)$
91 : $P_{1609} = (8, 3, 5, 1)$
92 : $P_{1614} = (13, 3, 5, 1)$
93 : $P_{1714} = (1, 10, 5, 1)$
94 : $P_{1717} = (4, 10, 5, 1)$
95 : $P_{1755} = (10, 12, 5, 1)$
96 : $P_{1760} = (15, 12, 5, 1)$
97 : $P_{1769} = (8, 13, 5, 1)$
98 : $P_{1774} = (13, 13, 5, 1)$

$99:\ P_{1785} = (8, 14, 5, 1)$
$100:\ P_{1790} = (13, 14, 5, 1)$
$101:\ P_{1835} = (10, 1, 6, 1)$
$102:\ P_{1837} = (12, 1, 6, 1)$
$103:\ P_{1875} = (2, 4, 6, 1)$
$104:\ P_{1877} = (4, 4, 6, 1)$
$105:\ P_{1955} = (2, 9, 6, 1)$
$106:\ P_{1957} = (4, 9, 6, 1)$
$107:\ P_{2019} = (2, 13, 6, 1)$
$108:\ P_{2021} = (4, 13, 6, 1)$
$109:\ P_{2034} = (1, 14, 6, 1)$
$110:\ P_{2040} = (7, 14, 6, 1)$
$111:\ P_{2091} = (10, 1, 7, 1)$
$112:\ P_{2094} = (13, 1, 7, 1)$
$113:\ P_{2106} = (9, 2, 7, 1)$
$114:\ P_{2111} = (14, 2, 7, 1)$
$115:\ P_{2130} = (1, 4, 7, 1)$
$116:\ P_{2135} = (6, 4, 7, 1)$
$117:\ P_{2266} = (9, 12, 7, 1)$
$118:\ P_{2271} = (14, 12, 7, 1)$
$119:\ P_{2298} = (9, 14, 7, 1)$
$120:\ P_{2303} = (14, 14, 7, 1)$
$121:\ P_{2360} = (7, 2, 8, 1)$
$122:\ P_{2368} = (15, 2, 8, 1)$
$123:\ P_{2408} = (7, 5, 8, 1)$
$124:\ P_{2416} = (15, 5, 8, 1)$
$125:\ P_{2420} = (3, 6, 8, 1)$
$126:\ P_{2428} = (11, 6, 8, 1)$
$127:\ P_{2440} = (7, 7, 8, 1)$
$128:\ P_{2448} = (15, 7, 8, 1)$
$129:\ P_{2498} = (1, 11, 8, 1)$
$130:\ P_{2506} = (9, 11, 8, 1)$
$131:\ P_{2659} = (2, 5, 9, 1)$
$132:\ P_{2668} = (11, 5, 9, 1)$
$133:\ P_{2695} = (6, 7, 9, 1)$
$134:\ P_{2704} = (15, 7, 9, 1)$
$135:\ P_{2711} = (6, 8, 9, 1)$
$136:\ P_{2720} = (15, 8, 9, 1)$
$137:\ P_{2756} = (3, 11, 9, 1)$
$138:\ P_{2763} = (10, 11, 9, 1)$
$139:\ P_{2823} = (6, 15, 9, 1)$
$140:\ P_{2832} = (15, 15, 9, 1)$
$141:\ P_{2833} = (0, 0, 10, 1)$
$142:\ P_{2834} = (1, 0, 10, 1)$
$143:\ P_{2835} = (2, 0, 10, 1)$
$144:\ P_{2836} = (3, 0, 10, 1)$
$145:\ P_{2837} = (4, 0, 10, 1)$
$146:\ P_{2838} = (5, 0, 10, 1)$
$147:\ P_{2839} = (6, 0, 10, 1)$
$148:\ P_{2840} = (7, 0, 10, 1)$
$149:\ P_{2841} = (8, 0, 10, 1)$
$150:\ P_{2842} = (9, 0, 10, 1)$
$151:\ P_{2843} = (10, 0, 10, 1)$
$152:\ P_{2844} = (11, 0, 10, 1)$
$153:\ P_{2845} = (12, 0, 10, 1)$
$154:\ P_{2846} = (13, 0, 10, 1)$
$155:\ P_{2847} = (14, 0, 10, 1)$
$156:\ P_{2848} = (15, 0, 10, 1)$
$157:\ P_{2854} = (5, 1, 10, 1)$
$158:\ P_{2864} = (15, 1, 10, 1)$
$159:\ P_{2899} = (2, 4, 10, 1)$
$160:\ P_{2905} = (8, 4, 10, 1)$
$161:\ P_{2920} = (7, 5, 10, 1)$
$162:\ P_{2926} = (13, 5, 10, 1)$
$163:\ P_{2994} = (1, 10, 10, 1)$
$164:\ P_{3004} = (11, 10, 10, 1)$
$165:\ P_{3013} = (4, 11, 10, 1)$
$166:\ P_{3023} = (14, 11, 10, 1)$
$167:\ P_{3060} = (3, 14, 10, 1)$
$168:\ P_{3066} = (9, 14, 10, 1)$
$169:\ P_{3079} = (6, 15, 10, 1)$
$170:\ P_{3085} = (12, 15, 10, 1)$
$171:\ P_{3089} = (0, 0, 11, 1)$
$172:\ P_{3090} = (1, 0, 11, 1)$
$173:\ P_{3091} = (2, 0, 11, 1)$
$174:\ P_{3092} = (3, 0, 11, 1)$
$175:\ P_{3093} = (4, 0, 11, 1)$
$176:\ P_{3094} = (5, 0, 11, 1)$
$177:\ P_{3095} = (6, 0, 11, 1)$
$178:\ P_{3096} = (7, 0, 11, 1)$
$179:\ P_{3097} = (8, 0, 11, 1)$
$180:\ P_{3098} = (9, 0, 11, 1)$
$181:\ P_{3099} = (10, 0, 11, 1)$
$182:\ P_{3100} = (11, 0, 11, 1)$
$183:\ P_{3101} = (12, 0, 11, 1)$
$184:\ P_{3102} = (13, 0, 11, 1)$
$185:\ P_{3103} = (14, 0, 11, 1)$
$186:\ P_{3104} = (15, 0, 11, 1)$
$187:\ P_{3108} = (3, 1, 11, 1)$
$188:\ P_{3113} = (8, 1, 11, 1)$
$189:\ P_{3126} = (5, 2, 11, 1)$
$190:\ P_{3135} = (14, 2, 11, 1)$
$191:\ P_{3143} = (6, 3, 11, 1)$
$192:\ P_{3150} = (13, 3, 11, 1)$
$193:\ P_{3224} = (7, 8, 11, 1)$
$194:\ P_{3229} = (12, 8, 11, 1)$
$195:\ P_{3237} = (4, 9, 11, 1)$
$196:\ P_{3248} = (15, 9, 11, 1)$
$197:\ P_{3251} = (2, 10, 11, 1)$
$198:\ P_{3258} = (9, 10, 11, 1)$
$199:\ P_{3266} = (1, 11, 11, 1)$
$200:\ P_{3275} = (10, 11, 11, 1)$
$201:\ P_{3368} = (7, 1, 12, 1)$
$202:\ P_{3372} = (11, 1, 12, 1)$
$203:\ P_{3379} = (2, 2, 12, 1)$
$204:\ P_{3391} = (14, 2, 12, 1)$
$205:\ P_{3411} = (2, 4, 12, 1)$
$206:\ P_{3423} = (14, 4, 12, 1)$
$207:\ P_{3443} = (2, 6, 12, 1)$
$208:\ P_{3455} = (14, 6, 12, 1)$
$209:\ P_{3490} = (1, 9, 12, 1)$
$210:\ P_{3502} = (13, 9, 12, 1)$
$211:\ P_{3623} = (6, 1, 13, 1)$
$212:\ P_{3628} = (11, 1, 13, 1)$
$213:\ P_{3634} = (1, 2, 13, 1)$
$214:\ P_{3645} = (12, 2, 13, 1)$
$215:\ P_{3717} = (4, 7, 13, 1)$
$216:\ P_{3722} = (9, 7, 13, 1)$
$217:\ P_{3749} = (4, 9, 13, 1)$
$218:\ P_{3754} = (9, 9, 13, 1)$
$219:\ P_{3829} = (4, 14, 13, 1)$
$220:\ P_{3834} = (9, 14, 13, 1)$
$221:\ P_{3908} = (3, 3, 14, 1)$
$222:\ P_{3918} = (13, 3, 14, 1)$
$223:\ P_{3989} = (4, 8, 14, 1)$
$224:\ P_{3995} = (10, 8, 14, 1)$
$225:\ P_{4022} = (5, 10, 14, 1)$
$226:\ P_{4028} = (11, 10, 14, 1)$
$227:\ P_{4052} = (3, 12, 14, 1)$
$228:\ P_{4062} = (13, 12, 14, 1)$
$229:\ P_{4100} = (3, 15, 14, 1)$
$230:\ P_{4110} = (13, 15, 14, 1)$
$231:\ P_{4180} = (3, 4, 15, 1)$
$232:\ P_{4189} = (12, 4, 15, 1)$
$233:\ P_{4244} = (3, 8, 15, 1)$
$234:\ P_{4253} = (12, 8, 15, 1)$
$235:\ P_{4274} = (1, 10, 15, 1)$
$236:\ P_{4287} = (14, 10, 15, 1)$
$237:\ P_{4308} = (3, 12, 15, 1)$
$238:\ P_{4317} = (12, 12, 15, 1)$
$239:\ P_{4326} = (5, 13, 15, 1)$
$240:\ P_{4331} = (10, 13, 15, 1)$