Rank-74296 over GF(16)

January 15, 2021

The equation

The equation of the surface is :

$$X_0^3 + X_2^3 + X_0^2X_1 + X_0^2X_2 + X_1^2X_3 + X_0X_3^2 + X_0X_1X_2 = 0$$

(1, 0, 1, 0, 1, 1, 0, 0, 0, 1, 0, 0, 0, 1, 0, 0, 1, 0, 0, 0)
The point rank of the equation over GF(16) is 287445526

General information

Number of lines	1
Number of points	273
Number of singular points	1
Number of Eckardt points	0
Number of double points	0
Number of single points	17
Number of points off lines	256
Number of Hesse planes	0
Number of axes	0
Type of points on lines	17
Type of lines on points	1^{17}, 0^{256}

Singular Points

The surface has 1 singular points:

$0 : \ P_{531} = \mathbf{P}(1,0,1,1) = \mathbf{P}(1,0,1,1)$

The 1 Lines

The lines and their Pluecker coordinates are:

$$\ell_0 = \begin{bmatrix} 1 & 0 & 1 & 1 \\ 0 & 1 & 1 & 1 \end{bmatrix}_{4658} = \begin{bmatrix} 1 & 0 & 1 & 1 \\ 0 & 1 & 1 & 1 \end{bmatrix}_{4658} = \mathbf{Pl}(1,0,1,1,1,1)_{9427}$$

Rank of lines: (4658)
Rank of points on Klein quadric: (9427)

Eckardt Points

The surface has 0 Eckardt points:

Double Points

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

Single Points

The surface has 17 single points:
The single points on the surface are:

0 : $P_5 = (1,1,0,0)$ lies on line ℓ_0
1 : $P_{531} = (1,0,1,1)$ lies on line ℓ_0
2 : $P_{546} = (0,1,1,1)$ lies on line ℓ_0
3 : $P_{564} = (3,2,1,1)$ lies on line ℓ_0
4 : $P_{579} = (2,3,1,1)$ lies on line ℓ_0
5 : $P_{598} = (5,4,1,1)$ lies on line ℓ_0
6 : $P_{613} = (4,5,1,1)$ lies on line ℓ_0
7 : $P_{632} = (7,6,1,1)$ lies on line ℓ_0
8 : $P_{647} = (6,7,1,1)$ lies on line ℓ_0
9 : $P_{666} = (9,8,1,1)$ lies on line ℓ_0
10 : $P_{681} = (8,9,1,1)$ lies on line ℓ_0
11 : $P_{700} = (11,10,1,1)$ lies on line ℓ_0
12 : $P_{715} = (10,11,1,1)$ lies on line ℓ_0
13 : $P_{734} = (13,12,1,1)$ lies on line ℓ_0
14 : $P_{749} = (12,13,1,1)$ lies on line ℓ_0
15 : $P_{768} = (15,14,1,1)$ lies on line ℓ_0
16 : $P_{783} = (14,15,1,1)$ lies on line ℓ_0

The single points on the surface are:

Points on surface but on no line

The surface has 256 points not on any line:
The points on the surface but not on lines are:

0 : $P_1 = (0,1,0,0)$
1 : $P_3 = (0,0,0,1)$
2 : $P_{117} = (2,6,1,0)$
3 : $P_{123} = (8,6,1,0)$
4 : $P_{128} = (13,6,1,0)$
5 : $P_{134} = (3,7,1,0)$
6 : $P_{140} = (9,7,1,0)$
7 : $P_{143} = (12,7,1,0)$
8 : $P_{190} = (11,10,1,0)$
9 : $P_{205} = (10,11,1,0)$
10 : $P_{216} = (5,12,1,0)$
11 : $P_{217} = (6,12,1,0)$
12 : $P_{225} = (14,12,1,0)$
13 : $P_{231} = (4,13,1,0)$
14 : $P_{234} = (7,13,1,0)$
15 : $P_{242} = (15,13,1,0)$
16 : $P_{275} = (1,0,0,1)$
17 : $P_{291} = (1,1,0,1)$
18 : $P_{316} = (10,2,0,1)$
19 : $P_{329} = (7,3,0,1)$
20 : $P_{330} = (8,3,0,1)$
21 : $P_{334} = (12,3,0,1)$
22 : $P_{349} = (11,4,0,1)$
23 : $P_{360} = (6,5,0,1)$
24 : $P_{366} = (12,5,0,1)$
25 : $P_{369} = (15,5,0,1)$
26 : $P_{385} = (15,6,0,1)$
27 : $P_{391} = (5,7,0,1)$

28 : $P_{405} = (3, 8, 0, 1)$
29 : $P_{408} = (6, 8, 0, 1)$
30 : $P_{415} = (13, 8, 0, 1)$
31 : $P_{428} = (10, 9, 0, 1)$
32 : $P_{474} = (8, 12, 0, 1)$
33 : $P_{485} = (3, 13, 0, 1)$
34 : $P_{509} = (11, 14, 0, 1)$
35 : $P_{519} = (5, 15, 0, 1)$
36 : $P_{521} = (7, 15, 0, 1)$
37 : $P_{527} = (13, 15, 0, 1)$
38 : $P_{576} = (15, 2, 1, 1)$
39 : $P_{591} = (14, 3, 1, 1)$
40 : $P_{596} = (3, 4, 1, 1)$
41 : $P_{611} = (2, 5, 1, 1)$
42 : $P_{638} = (13, 6, 1, 1)$
43 : $P_{653} = (12, 7, 1, 1)$
44 : $P_{661} = (4, 8, 1, 1)$
45 : $P_{678} = (5, 9, 1, 1)$
46 : $P_{699} = (10, 10, 1, 1)$
47 : $P_{716} = (11, 11, 1, 1)$
48 : $P_{727} = (6, 12, 1, 1)$
49 : $P_{744} = (7, 13, 1, 1)$
50 : $P_{761} = (8, 14, 1, 1)$
51 : $P_{778} = (9, 15, 1, 1)$
52 : $P_{848} = (15, 3, 2, 1)$
53 : $P_{856} = (7, 4, 2, 1)$
54 : $P_{865} = (0, 5, 2, 1)$
55 : $P_{888} = (7, 6, 2, 1)$
56 : $P_{912} = (15, 7, 2, 1)$
57 : $P_{916} = (3, 8, 2, 1)$
58 : $P_{963} = (2, 11, 2, 1)$
59 : $P_{964} = (3, 11, 2, 1)$
60 : $P_{969} = (8, 11, 2, 1)$
61 : $P_{982} = (5, 12, 2, 1)$
62 : $P_{1001} = (8, 13, 2, 1)$
63 : $P_{1014} = (5, 14, 2, 1)$
64 : $P_{1051} = (10, 0, 3, 1)$
65 : $P_{1069} = (12, 1, 3, 1)$
66 : $P_{1096} = (7, 3, 3, 1)$
67 : $P_{1144} = (7, 6, 3, 1)$
68 : $P_{1146} = (9, 6, 3, 1)$
69 : $P_{1148} = (11, 6, 3, 1)$
70 : $P_{1156} = (3, 7, 3, 1)$
71 : $P_{1169} = (0, 8, 3, 1)$
72 : $P_{1180} = (11, 8, 3, 1)$
73 : $P_{1210} = (9, 10, 3, 1)$
74 : $P_{1213} = (12, 10, 3, 1)$
75 : $P_{1221} = (4, 11, 3, 1)$
76 : $P_{1243} = (10, 12, 3, 1)$
77 : $P_{1269} = (4, 14, 3, 1)$
78 : $P_{1337} = (8, 2, 4, 1)$
79 : $P_{1380} = (3, 5, 4, 1)$
80 : $P_{1401} = (8, 6, 4, 1)$
81 : $P_{1424} = (15, 7, 4, 1)$
82 : $P_{1425} = (0, 8, 4, 1)$
83 : $P_{1453} = (12, 9, 4, 1)$
84 : $P_{1461} = (4, 10, 4, 1)$
85 : $P_{1462} = (5, 10, 4, 1)$
86 : $P_{1472} = (15, 10, 4, 1)$
87 : $P_{1492} = (3, 12, 4, 1)$
88 : $P_{1517} = (12, 13, 4, 1)$
89 : $P_{1542} = (5, 15, 4, 1)$
90 : $P_{1564} = (11, 0, 5, 1)$
91 : $P_{1575} = (6, 1, 5, 1)$
92 : $P_{1594} = (9, 2, 5, 1)$
93 : $P_{1645} = (12, 5, 5, 1)$
94 : $P_{1660} = (11, 6, 5, 1)$
95 : $P_{1722} = (9, 10, 5, 1)$
96 : $P_{1735} = (6, 11, 5, 1)$
97 : $P_{1743} = (14, 11, 5, 1)$
98 : $P_{1750} = (5, 12, 5, 1)$
99 : $P_{1771} = (10, 13, 5, 1)$
100 : $P_{1773} = (12, 13, 5, 1)$
101 : $P_{1775} = (14, 13, 5, 1)$
102 : $P_{1793} = (0, 15, 5, 1)$
103 : $P_{1803} = (10, 15, 5, 1)$
104 : $P_{1818} = (9, 0, 6, 1)$
105 : $P_{1828} = (3, 1, 6, 1)$
106 : $P_{1857} = (0, 3, 6, 1)$
107 : $P_{1884} = (11, 4, 6, 1)$
108 : $P_{1916} = (11, 6, 6, 1)$
109 : $P_{1936} = (15, 7, 6, 1)$
110 : $P_{1954} = (1, 9, 6, 1)$
111 : $P_{1978} = (9, 10, 6, 1)$
112 : $P_{1995} = (10, 11, 6, 1)$
113 : $P_{2032} = (15, 13, 6, 1)$
114 : $P_{2034} = (1, 14, 6, 1)$
115 : $P_{2036} = (3, 14, 6, 1)$
116 : $P_{2043} = (10, 14, 6, 1)$
117 : $P_{2055} = (6, 15, 6, 1)$
118 : $P_{2067} = (2, 0, 7, 1)$
119 : $P_{2089} = (8, 1, 7, 1)$
120 : $P_{2098} = (1, 2, 7, 1)$
121 : $P_{2130} = (1, 4, 7, 1)$
122 : $P_{2137} = (8, 4, 7, 1)$
123 : $P_{2139} = (10, 4, 7, 1)$
124 : $P_{2152} = (7, 5, 7, 1)$
125 : $P_{2166} = (5, 6, 7, 1)$
126 : $P_{2188} = (11, 7, 7, 1)$
127 : $P_{2193} = (0, 8, 7, 1)$
128 : $P_{2227} = (2, 10, 7, 1)$
129 : $P_{2251} = (10, 11, 7, 1)$
130 : $P_{2262} = (5, 12, 7, 1)$
131 : $P_{2300} = (11, 14, 7, 1)$
132 : $P_{2331} = (10, 0, 8, 1)$
133 : $P_{2350} = (13, 1, 8, 1)$
134 : $P_{2369} = (0, 3, 8, 1)$
135 : $P_{2380} = (11, 3, 8, 1)$

136 : $P_{2399} = (14, 4, 8, 1)$
137 : $P_{2425} = (8, 6, 8, 1)$
138 : $P_{2435} = (2, 7, 8, 1)$
139 : $P_{2439} = (6, 7, 8, 1)$
140 : $P_{2444} = (11, 7, 8, 1)$
141 : $P_{2455} = (6, 8, 8, 1)$
142 : $P_{2483} = (2, 10, 8, 1)$
143 : $P_{2494} = (13, 10, 8, 1)$
144 : $P_{2511} = (14, 11, 8, 1)$
145 : $P_{2539} = (10, 13, 8, 1)$
146 : $P_{2633} = (8, 3, 9, 1)$
147 : $P_{2656} = (15, 4, 9, 1)$
148 : $P_{2678} = (5, 6, 9, 1)$
149 : $P_{2695} = (6, 7, 9, 1)$
150 : $P_{2710} = (5, 8, 9, 1)$
151 : $P_{2756} = (3, 11, 9, 1)$
152 : $P_{2761} = (8, 11, 9, 1)$
153 : $P_{2762} = (9, 11, 9, 1)$
154 : $P_{2772} = (3, 12, 9, 1)$
155 : $P_{2800} = (15, 13, 9, 1)$
156 : $P_{2807} = (6, 14, 9, 1)$
157 : $P_{2817} = (0, 15, 9, 1)$
158 : $P_{2844} = (11, 0, 10, 1)$
159 : $P_{2845} = (12, 0, 10, 1)$
160 : $P_{2846} = (13, 0, 10, 1)$
161 : $P_{2849} = (0, 1, 10, 1)$
162 : $P_{2851} = (2, 1, 10, 1)$
163 : $P_{2858} = (9, 1, 10, 1)$
164 : $P_{2866} = (1, 2, 10, 1)$
165 : $P_{2890} = (9, 3, 10, 1)$
166 : $P_{2893} = (12, 3, 10, 1)$
167 : $P_{2921} = (8, 5, 10, 1)$
168 : $P_{2963} = (2, 8, 10, 1)$
169 : $P_{2974} = (13, 8, 10, 1)$
170 : $P_{2978} = (1, 9, 10, 1)$
171 : $P_{2998} = (5, 10, 10, 1)$
172 : $P_{3003} = (10, 10, 10, 1)$
173 : $P_{3008} = (15, 10, 10, 1)$
174 : $P_{3014} = (5, 11, 10, 1)$
175 : $P_{3020} = (11, 11, 10, 1)$
176 : $P_{3024} = (15, 11, 10, 1)$
177 : $P_{3033} = (8, 12, 10, 1)$
178 : $P_{3044} = (3, 13, 10, 1)$
179 : $P_{3076} = (3, 15, 10, 1)$
180 : $P_{3095} = (6, 0, 11, 1)$
181 : $P_{3096} = (7, 0, 11, 1)$
182 : $P_{3099} = (10, 0, 11, 1)$
183 : $P_{3105} = (0, 1, 11, 1)$
184 : $P_{3109} = (4, 1, 11, 1)$
185 : $P_{3119} = (14, 1, 11, 1)$
186 : $P_{3142} = (5, 3, 11, 1)$
187 : $P_{3154} = (1, 4, 11, 1)$
188 : $P_{3175} = (6, 5, 11, 1)$
189 : $P_{3183} = (14, 5, 11, 1)$
190 : $P_{3200} = (15, 6, 11, 1)$
191 : $P_{3206} = (5, 7, 11, 1)$
192 : $P_{3232} = (15, 8, 11, 1)$
193 : $P_{3252} = (3, 10, 11, 1)$
194 : $P_{3257} = (8, 10, 11, 1)$
195 : $P_{3259} = (10, 10, 11, 1)$
196 : $P_{3268} = (3, 11, 11, 1)$
197 : $P_{3273} = (8, 11, 11, 1)$
198 : $P_{3276} = (11, 11, 11, 1)$
199 : $P_{3314} = (1, 14, 11, 1)$
200 : $P_{3333} = (4, 15, 11, 1)$
201 : $P_{3336} = (7, 15, 11, 1)$
202 : $P_{3349} = (4, 0, 12, 1)$
203 : $P_{3376} = (15, 1, 12, 1)$
204 : $P_{3387} = (10, 2, 12, 1)$
205 : $P_{3410} = (1, 4, 12, 1)$
206 : $P_{3449} = (8, 6, 12, 1)$
207 : $P_{3485} = (12, 8, 12, 1)$
208 : $P_{3490} = (1, 9, 12, 1)$
209 : $P_{3500} = (11, 9, 12, 1)$
210 : $P_{3504} = (15, 9, 12, 1)$
211 : $P_{3516} = (11, 10, 12, 1)$
212 : $P_{3525} = (4, 11, 12, 1)$
213 : $P_{3547} = (10, 12, 12, 1)$
214 : $P_{3561} = (8, 13, 12, 1)$
215 : $P_{3585} = (0, 15, 12, 1)$
216 : $P_{3615} = (14, 0, 13, 1)$
217 : $P_{3622} = (5, 1, 13, 1)$
218 : $P_{3634} = (1, 2, 13, 1)$
219 : $P_{3638} = (5, 2, 13, 1)$
220 : $P_{3644} = (11, 2, 13, 1)$
221 : $P_{3662} = (13, 3, 13, 1)$
222 : $P_{3681} = (0, 5, 13, 1)$
223 : $P_{3716} = (3, 7, 13, 1)$
224 : $P_{3755} = (10, 9, 13, 1)$
225 : $P_{3772} = (11, 10, 13, 1)$
226 : $P_{3791} = (14, 11, 13, 1)$
227 : $P_{3796} = (3, 12, 13, 1)$
228 : $P_{3819} = (10, 13, 13, 1)$
229 : $P_{3826} = (1, 14, 13, 1)$
230 : $P_{3902} = (13, 2, 14, 1)$
231 : $P_{3905} = (0, 3, 14, 1)$
232 : $P_{3952} = (15, 5, 14, 1)$
233 : $P_{3958} = (5, 6, 14, 1)$
234 : $P_{3972} = (3, 7, 14, 1)$
235 : $P_{4004} = (3, 9, 14, 1)$
236 : $P_{4022} = (5, 10, 14, 1)$
237 : $P_{4031} = (14, 10, 14, 1)$
238 : $P_{4032} = (15, 10, 14, 1)$
239 : $P_{4062} = (13, 12, 14, 1)$
240 : $P_{4073} = (8, 13, 14, 1)$
241 : $P_{4105} = (8, 15, 14, 1)$
242 : $P_{4124} = (11, 0, 15, 1)$
243 : $P_{4136} = (7, 1, 15, 1)$

244 : $P_{4193} = (0, 5, 15, 1)$
245 : $P_{4203} = (10, 5, 15, 1)$
246 : $P_{4236} = (11, 7, 15, 1)$
247 : $P_{4259} = (2, 9, 15, 1)$
248 : $P_{4275} = (2, 10, 15, 1)$
249 : $P_{4293} = (4, 11, 15, 1)$
250 : $P_{4296} = (7, 11, 15, 1)$
251 : $P_{4309} = (4, 12, 15, 1)$
252 : $P_{4315} = (10, 12, 15, 1)$
253 : $P_{4318} = (13, 12, 15, 1)$
254 : $P_{4336} = (15, 13, 15, 1)$
255 : $P_{4366} = (13, 15, 15, 1)$

Line Intersection Graph

	0
0	0

Neighbor sets in the line intersection graph:
Line 0 intersects

Line
in point

The surface has 273 points:
The points on the surface are:

0 : $P_{1} = (0, 1, 0, 0)$
1 : $P_{3} = (0, 0, 0, 1)$
2 : $P_{5} = (1, 1, 0, 0)$
3 : $P_{117} = (2, 6, 1, 0)$
4 : $P_{123} = (8, 6, 1, 0)$
5 : $P_{128} = (13, 6, 1, 0)$
6 : $P_{134} = (3, 7, 1, 0)$
7 : $P_{140} = (9, 7, 1, 0)$
8 : $P_{143} = (12, 7, 1, 0)$
9 : $P_{190} = (11, 10, 1, 0)$
10 : $P_{205} = (10, 11, 1, 0)$
11 : $P_{216} = (5, 12, 1, 0)$
12 : $P_{217} = (6, 12, 1, 0)$
13 : $P_{225} = (14, 12, 1, 0)$
14 : $P_{231} = (4, 13, 1, 0)$
15 : $P_{234} = (7, 13, 1, 0)$
16 : $P_{242} = (15, 13, 1, 0)$
17 : $P_{275} = (1, 0, 0, 1)$
18 : $P_{291} = (1, 1, 0, 1)$
19 : $P_{316} = (10, 2, 0, 1)$
20 : $P_{329} = (7, 3, 0, 1)$
21 : $P_{330} = (8, 3, 0, 1)$
22 : $P_{334} = (12, 3, 0, 1)$
23 : $P_{349} = (11, 4, 0, 1)$
24 : $P_{360} = (6, 5, 0, 1)$
25 : $P_{366} = (12, 5, 0, 1)$
26 : $P_{369} = (15, 5, 0, 1)$
27 : $P_{385} = (15, 6, 0, 1)$
28 : $P_{391} = (5, 7, 0, 1)$
29 : $P_{405} = (3, 8, 0, 1)$
30 : $P_{408} = (6, 8, 0, 1)$
31 : $P_{415} = (13, 8, 0, 1)$
32 : $P_{428} = (10, 9, 0, 1)$
33 : $P_{474} = (8, 12, 0, 1)$
34 : $P_{485} = (3, 13, 0, 1)$
35 : $P_{509} = (11, 14, 0, 1)$
36 : $P_{519} = (5, 15, 0, 1)$
37 : $P_{521} = (7, 15, 0, 1)$
38 : $P_{527} = (13, 15, 0, 1)$
39 : $P_{531} = (1, 0, 1, 1)$
40 : $P_{546} = (0, 1, 1, 1)$
41 : $P_{564} = (3, 2, 1, 1)$
42 : $P_{576} = (15, 2, 1, 1)$
43 : $P_{579} = (2, 3, 1, 1)$
44 : $P_{591} = (14, 3, 1, 1)$
45 : $P_{596} = (3, 4, 1, 1)$
46 : $P_{598} = (5, 4, 1, 1)$
47 : $P_{611} = (2, 5, 1, 1)$
48 : $P_{613} = (4, 5, 1, 1)$
49 : $P_{632} = (7, 6, 1, 1)$
50 : $P_{638} = (13, 6, 1, 1)$
51 : $P_{647} = (6, 7, 1, 1)$
52 : $P_{653} = (12, 7, 1, 1)$
53 : $P_{661} = (4, 8, 1, 1)$
54 : $P_{666} = (9, 8, 1, 1)$
55 : $P_{678} = (5, 9, 1, 1)$
56 : $P_{681} = (8, 9, 1, 1)$
57 : $P_{699} = (10, 10, 1, 1)$
58 : $P_{700} = (11, 10, 1, 1)$
59 : $P_{715} = (10, 11, 1, 1)$
60 : $P_{716} = (11, 11, 1, 1)$
61 : $P_{727} = (6, 12, 1, 1)$
62 : $P_{734} = (13, 12, 1, 1)$
63 : $P_{744} = (7, 13, 1, 1)$
64 : $P_{749} = (12, 13, 1, 1)$
65 : $P_{761} = (8, 14, 1, 1)$
66 : $P_{768} = (15, 14, 1, 1)$
67 : $P_{778} = (9, 15, 1, 1)$
68 : $P_{783} = (14, 15, 1, 1)$
69 : $P_{848} = (15, 3, 2, 1)$
70 : $P_{856} = (7, 4, 2, 1)$
71 : $P_{865} = (0, 5, 2, 1)$
72 : $P_{888} = (7, 6, 2, 1)$
73 : $P_{912} = (15, 7, 2, 1)$
74 : $P_{916} = (3, 8, 2, 1)$
75 : $P_{963} = (2, 11, 2, 1)$
76 : $P_{964} = (3, 11, 2, 1)$
77 : $P_{969} = (8, 11, 2, 1)$
78 : $P_{982} = (5, 12, 2, 1)$
79 : $P_{1001} = (8, 13, 2, 1)$
80 : $P_{1014} = (5, 14, 2, 1)$
81 : $P_{1051} = (10, 0, 3, 1)$
82 : $P_{1069} = (12, 1, 3, 1)$
83 : $P_{1096} = (7, 3, 3, 1)$
84 : $P_{1144} = (7, 6, 3, 1)$
85 : $P_{1146} = (9, 6, 3, 1)$
86 : $P_{1148} = (11, 6, 3, 1)$
87 : $P_{1156} = (3, 7, 3, 1)$
88 : $P_{1169} = (0, 8, 3, 1)$
89 : $P_{1180} = (11, 8, 3, 1)$
90 : $P_{1210} = (9, 10, 3, 1)$
91 : $P_{1213} = (12, 10, 3, 1)$
92 : $P_{1221} = (4, 11, 3, 1)$
93 : $P_{1243} = (10, 12, 3, 1)$
94 : $P_{1269} = (4, 14, 3, 1)$
95 : $P_{1337} = (8, 2, 4, 1)$
96 : $P_{1380} = (3, 5, 4, 1)$
97 : $P_{1401} = (8, 6, 4, 1)$
98 : $P_{1424} = (15, 7, 4, 1)$

$99: P_{1425} = (0, 8, 4, 1)$
$100: P_{1453} = (12, 9, 4, 1)$
$101: P_{1461} = (4, 10, 4, 1)$
$102: P_{1462} = (5, 10, 4, 1)$
$103: P_{1472} = (15, 10, 4, 1)$
$104: P_{1492} = (3, 12, 4, 1)$
$105: P_{1517} = (12, 13, 4, 1)$
$106: P_{1542} = (5, 15, 4, 1)$
$107: P_{1564} = (11, 0, 5, 1)$
$108: P_{1575} = (6, 1, 5, 1)$
$109: P_{1594} = (9, 2, 5, 1)$
$110: P_{1645} = (12, 5, 5, 1)$
$111: P_{1660} = (11, 6, 5, 1)$
$112: P_{1722} = (9, 10, 5, 1)$
$113: P_{1735} = (6, 11, 5, 1)$
$114: P_{1743} = (14, 11, 5, 1)$
$115: P_{1750} = (5, 12, 5, 1)$
$116: P_{1771} = (10, 13, 5, 1)$
$117: P_{1773} = (12, 13, 5, 1)$
$118: P_{1775} = (14, 13, 5, 1)$
$119: P_{1793} = (0, 15, 5, 1)$
$120: P_{1803} = (10, 15, 5, 1)$
$121: P_{1818} = (9, 0, 6, 1)$
$122: P_{1828} = (3, 1, 6, 1)$
$123: P_{1857} = (0, 3, 6, 1)$
$124: P_{1884} = (11, 4, 6, 1)$
$125: P_{1916} = (11, 6, 6, 1)$
$126: P_{1936} = (15, 7, 6, 1)$
$127: P_{1954} = (1, 9, 6, 1)$
$128: P_{1978} = (9, 10, 6, 1)$
$129: P_{1995} = (10, 11, 6, 1)$
$130: P_{2032} = (15, 13, 6, 1)$
$131: P_{2034} = (1, 14, 6, 1)$
$132: P_{2036} = (3, 14, 6, 1)$
$133: P_{2043} = (10, 14, 6, 1)$
$134: P_{2055} = (6, 15, 6, 1)$
$135: P_{2067} = (2, 0, 7, 1)$
$136: P_{2089} = (8, 1, 7, 1)$
$137: P_{2098} = (1, 2, 7, 1)$
$138: P_{2130} = (1, 4, 7, 1)$
$139: P_{2137} = (8, 4, 7, 1)$
$140: P_{2139} = (10, 4, 7, 1)$
$141: P_{2152} = (7, 5, 7, 1)$
$142: P_{2166} = (5, 6, 7, 1)$
$143: P_{2188} = (11, 7, 7, 1)$
$144: P_{2193} = (0, 8, 7, 1)$
$145: P_{2227} = (2, 10, 7, 1)$
$146: P_{2251} = (10, 11, 7, 1)$
$147: P_{2262} = (5, 12, 7, 1)$
$148: P_{2300} = (11, 14, 7, 1)$
$149: P_{2331} = (10, 0, 8, 1)$
$150: P_{2350} = (13, 1, 8, 1)$
$151: P_{2369} = (0, 3, 8, 1)$
$152: P_{2380} = (11, 3, 8, 1)$
$153: P_{2399} = (14, 4, 8, 1)$
$154: P_{2425} = (8, 6, 8, 1)$
$155: P_{2435} = (2, 7, 8, 1)$
$156: P_{2439} = (6, 7, 8, 1)$
$157: P_{2444} = (11, 7, 8, 1)$
$158: P_{2455} = (6, 8, 8, 1)$
$159: P_{2483} = (2, 10, 8, 1)$
$160: P_{2494} = (13, 10, 8, 1)$
$161: P_{2511} = (14, 11, 8, 1)$
$162: P_{2539} = (10, 13, 8, 1)$
$163: P_{2633} = (8, 3, 9, 1)$
$164: P_{2656} = (15, 4, 9, 1)$
$165: P_{2678} = (5, 6, 9, 1)$
$166: P_{2695} = (6, 7, 9, 1)$
$167: P_{2710} = (5, 8, 9, 1)$
$168: P_{2756} = (3, 11, 9, 1)$
$169: P_{2761} = (8, 11, 9, 1)$
$170: P_{2762} = (9, 11, 9, 1)$
$171: P_{2772} = (3, 12, 9, 1)$
$172: P_{2800} = (15, 13, 9, 1)$
$173: P_{2807} = (6, 14, 9, 1)$
$174: P_{2817} = (0, 15, 9, 1)$
$175: P_{2844} = (11, 0, 10, 1)$
$176: P_{2845} = (12, 0, 10, 1)$
$177: P_{2846} = (13, 0, 10, 1)$
$178: P_{2849} = (0, 1, 10, 1)$
$179: P_{2851} = (2, 1, 10, 1)$
$180: P_{2858} = (9, 1, 10, 1)$
$181: P_{2866} = (1, 2, 10, 1)$
$182: P_{2890} = (9, 3, 10, 1)$
$183: P_{2893} = (12, 3, 10, 1)$
$184: P_{2921} = (8, 5, 10, 1)$
$185: P_{2963} = (2, 8, 10, 1)$
$186: P_{2974} = (13, 8, 10, 1)$
$187: P_{2978} = (1, 9, 10, 1)$
$188: P_{2998} = (5, 10, 10, 1)$
$189: P_{3003} = (10, 10, 10, 1)$
$190: P_{3008} = (15, 10, 10, 1)$
$191: P_{3014} = (5, 11, 10, 1)$
$192: P_{3020} = (11, 11, 10, 1)$
$193: P_{3024} = (15, 11, 10, 1)$
$194: P_{3033} = (8, 12, 10, 1)$
$195: P_{3044} = (3, 13, 10, 1)$
$196: P_{3076} = (3, 15, 10, 1)$
$197: P_{3095} = (6, 0, 11, 1)$
$198: P_{3096} = (7, 0, 11, 1)$
$199: P_{3099} = (10, 0, 11, 1)$
$200: P_{3105} = (0, 1, 11, 1)$
$201: P_{3109} = (4, 1, 11, 1)$
$202: P_{3119} = (14, 1, 11, 1)$
$203: P_{3142} = (5, 3, 11, 1)$
$204: P_{3154} = (1, 4, 11, 1)$
$205: P_{3175} = (6, 5, 11, 1)$
$206: P_{3183} = (14, 5, 11, 1)$
$207: P_{3200} = (15, 6, 11, 1)$
$208: P_{3206} = (5, 7, 11, 1)$
$209: P_{3232} = (15, 8, 11, 1)$
$210: P_{3252} = (3, 10, 11, 1)$
$211: P_{3257} = (8, 10, 11, 1)$
$212: P_{3259} = (10, 10, 11, 1)$
$213: P_{3268} = (3, 11, 11, 1)$
$214: P_{3273} = (8, 11, 11, 1)$
$215: P_{3276} = (11, 11, 11, 1)$
$216: P_{3314} = (1, 14, 11, 1)$
$217: P_{3333} = (4, 15, 11, 1)$
$218: P_{3336} = (7, 15, 11, 1)$
$219: P_{3349} = (4, 0, 12, 1)$
$220: P_{3376} = (15, 1, 12, 1)$
$221: P_{3387} = (10, 2, 12, 1)$
$222: P_{3410} = (1, 4, 12, 1)$
$223: P_{3449} = (8, 6, 12, 1)$
$224: P_{3485} = (12, 8, 12, 1)$
$225: P_{3490} = (1, 9, 12, 1)$
$226: P_{3500} = (11, 9, 12, 1)$
$227: P_{3504} = (15, 9, 12, 1)$
$228: P_{3516} = (11, 10, 12, 1)$
$229: P_{3525} = (4, 11, 12, 1)$
$230: P_{3547} = (10, 12, 12, 1)$
$231: P_{3561} = (8, 13, 12, 1)$
$232: P_{3585} = (0, 15, 12, 1)$
$233: P_{3615} = (14, 0, 13, 1)$
$234: P_{3622} = (5, 1, 13, 1)$
$235: P_{3634} = (1, 2, 13, 1)$
$236: P_{3638} = (5, 2, 13, 1)$
$237: P_{3644} = (11, 2, 13, 1)$
$238: P_{3662} = (13, 3, 13, 1)$
$239: P_{3681} = (0, 5, 13, 1)$
$240: P_{3716} = (3, 7, 13, 1)$
$241: P_{3755} = (10, 9, 13, 1)$
$242: P_{3772} = (11, 10, 13, 1)$
$243: P_{3791} = (14, 11, 13, 1)$
$244: P_{3796} = (3, 12, 13, 1)$
$245: P_{3819} = (10, 13, 13, 1)$
$246: P_{3826} = (1, 14, 13, 1)$
$247: P_{3902} = (13, 2, 14, 1)$
$248: P_{3905} = (0, 3, 14, 1)$
$249: P_{3952} = (15, 5, 14, 1)$
$250: P_{3958} = (5, 6, 14, 1)$
$251: P_{3972} = (3, 7, 14, 1)$
$252: P_{4004} = (3, 9, 14, 1)$
$253: P_{4022} = (5, 10, 14, 1)$
$254: P_{4031} = (14, 10, 14, 1)$
$255: P_{4032} = (15, 10, 14, 1)$
$256: P_{4062} = (13, 12, 14, 1)$
$257: P_{4073} = (8, 13, 14, 1)$
$258: P_{4105} = (8, 15, 14, 1)$
$259: P_{4124} = (11, 0, 15, 1)$
$260: P_{4136} = (7, 1, 15, 1)$

261 : $P_{4193} = (0, 5, 15, 1)$
262 : $P_{4203} = (10, 5, 15, 1)$
263 : $P_{4236} = (11, 7, 15, 1)$
264 : $P_{4259} = (2, 9, 15, 1)$
265 : $P_{4275} = (2, 10, 15, 1)$
266 : $P_{4293} = (4, 11, 15, 1)$
267 : $P_{4296} = (7, 11, 15, 1)$
268 : $P_{4309} = (4, 12, 15, 1)$
269 : $P_{4315} = (10, 12, 15, 1)$
270 : $P_{4318} = (13, 12, 15, 1)$
271 : $P_{4336} = (15, 13, 15, 1)$
272 : $P_{4366} = (13, 15, 15, 1)$