Rank-76292 over GF(16)

January 15, 2021

The equation

The equation of the surface is :

$$X_0^3 + X_1^2X_3 + X_1X_2^2 + X_0X_3^2 + X_0X_1X_2 = 0$$

(1, 0, 0, 0, 0, 0, 0, 0, 0, 1, 0, 1, 0, 1, 0, 0, 1, 0, 0, 0)
The point rank of the equation over GF(16) is 286331158

General information

Number of lines	16
Number of points	337
Number of singular points	2
Number of Eckardt points	3
Number of double points	29
Number of single points	195
Number of points off lines	108
Number of Hesse planes	0
Number of axes	0
Type of points on lines	17^{16}
Type of lines on points	5^2, 3^3, 2^{29}, 1^{195}, 0^{108}

Singular Points

The surface has 2 singular points:

$0: \ P_{275} = \mathbf{P}(1,0,0,1) = \mathbf{P}(1,0,0,1)$
$1: \ P_{531} = \mathbf{P}(1,0,1,1) = \mathbf{P}(1,0,1,1)$

The 16 Lines

The lines and their Pluecker coordinates are:

$$\ell_0 = \begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{70160} = \begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{70160} = \mathbf{Pl}(0,1,0,0,0,0)_1$$

$$\ell_1 = \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{4624} = \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{4624} = \mathbf{Pl}(0,1,1,0,0,0)_{18}$$

$$\ell_2 = \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 1 & \delta^{14} & \delta^{13} \end{bmatrix}_{4476} = \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 1 & 12 & 6 \end{bmatrix}_{4476} = \mathbf{Pl}(12,2,2,4,1,0)_{1951}$$

$$\ell_3 = \begin{bmatrix} 1 & \delta^{10} & 0 & \delta^{3} \\ 0 & 0 & 1 & \delta^{5} \end{bmatrix}_{37941} = \begin{bmatrix} 1 & 10 & 0 & 8 \\ 0 & 0 & 1 & 11 \end{bmatrix}_{37941} = \mathbf{Pl}(0,14,10,11,10,1)_{46454}$$

$$\ell_4 = \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 1 & \delta^{13} & \delta^{11} \end{bmatrix}_{4582} = \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 1 & 6 & 13 \end{bmatrix}_{4582} = \mathbf{Pl}(6,4,4,9,1,0)_{3100}$$

$$\ell_5 = \begin{bmatrix} 1 & \delta^{5} & 0 & \delta^{6} \\ 0 & 0 & 1 & \delta^{10} \end{bmatrix}_{68789} = \begin{bmatrix} 1 & 11 & 0 & 15 \\ 0 & 0 & 1 & 10 \end{bmatrix}_{68789} = \mathbf{Pl}(0,2,11,10,11,1)_{50553}$$

$$\ell_6 = \begin{bmatrix} 1 & \delta^{10} & 0 & \delta^{12} \\ 0 & 0 & 1 & \delta^{5} \end{bmatrix}_{16101} = \begin{bmatrix} 1 & 10 & 0 & 3 \\ 0 & 0 & 1 & 11 \end{bmatrix}_{16101} = \mathbf{Pl}(0,4,10,11,10,1)_{46444}$$

$$\ell_7 = \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 1 & \delta^{11} & \delta^{7} \end{bmatrix}_{4493} = \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 1 & 13 & 7 \end{bmatrix}_{4493} = \mathbf{Pl}(13,9,9,14,1,0)_{4307}$$

$$\ell_8 = \begin{bmatrix} 1 & 0 & 1 & 1 \\ 0 & 1 & \delta^{7} & \delta^{14} \end{bmatrix}_{4840} = \begin{bmatrix} 1 & 0 & 1 & 1 \\ 0 & 1 & 7 & 12 \end{bmatrix}_{4840} = \mathbf{Pl}(10,11,1,1,12,1)_{54960}$$

$$\ell_9 = \begin{bmatrix} 1 & 1 & 0 & \delta^{5} \\ 0 & 0 & 1 & 1 \end{bmatrix}_{48578} = \begin{bmatrix} 1 & 1 & 0 & 11 \\ 0 & 0 & 1 & 1 \end{bmatrix}_{48578} = \mathbf{Pl}(0,11,1,1,1,1)_{9452}$$

$$\ell_{10} = \begin{bmatrix} 1 & 0 & 1 & 1 \\ 0 & 1 & \delta^{13} & \delta^{11} \end{bmatrix}_{4855} = \begin{bmatrix} 1 & 0 & 1 & 1 \\ 0 & 1 & 6 & 13 \end{bmatrix}_{4855} = \mathbf{Pl}(10,11,1,1,13,1)_{58890}$$

$$\ell_{11} = \begin{bmatrix} 1 & 0 & 1 & 1 \\ 0 & 1 & \delta^{11} & \delta^{7} \end{bmatrix}_{4766} = \begin{bmatrix} 1 & 0 & 1 & 1 \\ 0 & 1 & 13 & 7 \end{bmatrix}_{4766} = \mathbf{Pl}(11,10,1,1,7,1)_{34486}$$

$$\ell_{12} = \begin{bmatrix} 1 & 0 & 1 & 1 \\ 0 & 1 & \delta^{14} & \delta^{13} \end{bmatrix}_{4749} = \begin{bmatrix} 1 & 0 & 1 & 1 \\ 0 & 1 & 12 & 6 \end{bmatrix}_{4749} = \mathbf{Pl}(11,10,1,1,6,1)_{30301}$$

$$\ell_{13} = \begin{bmatrix} 1 & 1 & 0 & \delta^{10} \\ 0 & 0 & 1 & 1 \end{bmatrix}_{44210} = \begin{bmatrix} 1 & 1 & 0 & 10 \\ 0 & 0 & 1 & 1 \end{bmatrix}_{44210} = \mathbf{Pl}(0,10,1,1,1,1)_{9451}$$

$$\ell_{14} = \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 1 & \delta^{7} & \delta^{14} \end{bmatrix}_{4567} = \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 1 & 7 & 12 \end{bmatrix}_{4567} = \mathbf{Pl}(7,14,14,2,1,0)_{1676}$$

$$\ell_{15} = \begin{bmatrix} 1 & \delta^{5} & 0 & \delta^{9} \\ 0 & 0 & 1 & \delta^{10} \end{bmatrix}_{25109} = \begin{bmatrix} 1 & 11 & 0 & 5 \\ 0 & 0 & 1 & 10 \end{bmatrix}_{25109} = \mathbf{Pl}(0,9,11,10,11,1)_{50560}$$

Rank of lines: (70160, 4624, 4476, 37941, 4582, 68789, 16101, 4493, 4840, 48578, 4855, 4766, 4749, 44210, 4567, 25109)
Rank of points on Klein quadric: (1, 18, 1951, 46454, 3100, 50553, 46444, 4307, 54960, 9452, 58890, 34486, 30301, 9451, 1676, 50560)

Eckardt Points

The surface has 3 Eckardt points:
$0 : P_{530} = \mathbf{P}(0,0,1,1) = \mathbf{P}(0,0,1,1)$,
$1 : P_{2833} = \mathbf{P}(0,0,\delta^{10},1) = \mathbf{P}(0,0,10,1)$,
$2 : P_{3089} = \mathbf{P}(0,0,\delta^{5},1) = \mathbf{P}(0,0,11,1)$.

Double Points

The surface has 29 Double points:
The double points on the surface are:

$P_{2} = (0,0,1,0) = \ell_0 \cap \ell_1$
$P_{2470} = (5,9,8,1) = \ell_2 \cap \ell_6$
$P_{2303} = (14,14,7,1) = \ell_2 \cap \ell_9$
$P_{849} = (0,4,2,1) = \ell_2 \cap \ell_{12}$
$P_{574} = (13,2,1,1) = \ell_2 \cap \ell_{15}$
$P_{600} = (7,4,1,1) = \ell_3 \cap \ell_4$
$P_{1088} = (15,2,3,1) = \ell_3 \cap \ell_7$
$P_{2295} = (6,14,7,1) = \ell_3 \cap \ell_8$
$P_{3750} = (5,9,13,1) = \ell_3 \cap \ell_{12}$
$P_{1441} = (0,9,4,1) = \ell_4 \cap \ell_{10}$
$P_{3379} = (2,2,12,1) = \ell_4 \cap \ell_{13}$
$P_{4345} = (8,14,15,1) = \ell_4 \cap \ell_{15}$
$P_{685} = (12,9,1,1) = \ell_5 \cap \ell_7$
$P_{2297} = (8,14,7,1) = \ell_5 \cap \ell_{10}$
$P_{3390} = (13,2,12,1) = \ell_5 \cap \ell_{12}$
$P_{1620} = (3,4,5,1) = \ell_5 \cap \ell_{14}$
$P_{1880} = (7,4,6,1) = \ell_6 \cap \ell_{10}$
$P_{3392} = (15,2,12,1) = \ell_6 \cap \ell_{11}$
$P_{759} = (6,14,1,1) = \ell_6 \cap \ell_{14}$
$P_{1877} = (4,4,6,1) = \ell_7 \cap \ell_9$
$P_{2801} = (0,14,9,1) = \ell_7 \cap \ell_{11}$
$P_{1450} = (9,9,4,1) = \ell_8 \cap \ell_9$
$P_{3889} = (0,2,14,1) = \ell_8 \cap \ell_{14}$
$P_{1876} = (3,4,6,1) = \ell_8 \cap \ell_{15}$
$P_{3891} = (2,2,14,1) = \ell_9 \cap \ell_{10}$
$P_{853} = (4,4,2,1) = \ell_{11} \cap \ell_{13}$
$P_{3757} = (12,9,13,1) = \ell_{11} \cap \ell_{15}$
$P_{2815} = (14,14,9,1) = \ell_{12} \cap \ell_{13}$
$P_{3754} = (9,9,13,1) = \ell_{13} \cap \ell_{14}$

Single Points

The surface has 195 single points:
The single points on the surface are:

0 : $P_{3} = (0,0,0,1)$ lies on line ℓ_0
1 : $P_{63} = (12,2,1,0)$ lies on line ℓ_2
2 : $P_{71} = (4,3,1,0)$ lies on line ℓ_3
3 : $P_{89} = (6,4,1,0)$ lies on line ℓ_4
4 : $P_{108} = (9,5,1,0)$ lies on line ℓ_5
5 : $P_{161} = (14,8,1,0)$ lies on line ℓ_6
6 : $P_{176} = (13,9,1,0)$ lies on line ℓ_7
7 : $P_{184} = (5,10,1,0)$ lies on line ℓ_8
8 : $P_{189} = (10,10,1,0)$ lies on line ℓ_9
9 : $P_{194} = (15,10,1,0)$ lies on line ℓ_{10}
10 : $P_{198} = (3,11,1,0)$ lies on line ℓ_{11}
11 : $P_{203} = (8,11,1,0)$ lies on line ℓ_{12}
12 : $P_{206} = (11,11,1,0)$ lies on line ℓ_{13}
13 : $P_{250} = (7,14,1,0)$ lies on line ℓ_{14}
14 : $P_{261} = (2,15,1,0)$ lies on line ℓ_{15}
15 : $P_{378} = (8,6,0,1)$ lies on line ℓ_6
16 : $P_{389} = (3,7,0,1)$ lies on line ℓ_3
17 : $P_{438} = (4,10,0,1)$ lies on line ℓ_8
18 : $P_{444} = (10,10,0,1)$ lies on line ℓ_9
19 : $P_{448} = (14,10,0,1)$ lies on line ℓ_{10}
20 : $P_{452} = (2,11,0,1)$ lies on line ℓ_{11}
21 : $P_{459} = (9,11,0,1)$ lies on line ℓ_{12}
22 : $P_{461} = (11,11,0,1)$ lies on line ℓ_{13}
23 : $P_{471} = (5,12,0,1)$ lies on line ℓ_5
24 : $P_{497} = (15,13,0,1)$ lies on line ℓ_{15}
25 : $P_{785} = (0,0,2,1)$ lies on line ℓ_0
26 : $P_{786} = (1,0,2,1)$ lies on line ℓ_1
27 : $P_{812} = (11,1,2,1)$ lies on line ℓ_3
28 : $P_{880} = (15,5,2,1)$ lies on line ℓ_{14}
29 : $P_{895} = (14,6,2,1)$ lies on line ℓ_5
30 : $P_{904} = (7,7,2,1)$ lies on line ℓ_9
31 : $P_{906} = (9,7,2,1)$ lies on line ℓ_{10}
32 : $P_{911} = (14,7,2,1)$ lies on line ℓ_8
33 : $P_{926} = (13,8,2,1)$ lies on line ℓ_4
34 : $P_{956} = (11,10,2,1)$ lies on line ℓ_{15}
35 : $P_{963} = (2,11,2,1)$ lies on line ℓ_7
36 : $P_{1038} = (13,15,2,1)$ lies on line ℓ_6
37 : $P_{1041} = (0,0,3,1)$ lies on line ℓ_0
38 : $P_{1042} = (1,0,3,1)$ lies on line ℓ_1
39 : $P_{1096} = (7,3,3,1)$ lies on line ℓ_5
40 : $P_{1130} = (9,5,3,1)$ lies on line ℓ_{15}
41 : $P_{1149} = (12,6,3,1)$ lies on line ℓ_2
42 : $P_{1156} = (3,7,3,1)$ lies on line ℓ_6
43 : $P_{1225} = (8,11,3,1)$ lies on line ℓ_{14}
44 : $P_{1244} = (11,12,3,1)$ lies on line ℓ_4
45 : $P_{1255} = (6,13,3,1)$ lies on line ℓ_{10}
46 : $P_{1260} = (11,13,3,1)$ lies on line ℓ_8
47 : $P_{1262} = (13,13,3,1)$ lies on line ℓ_9
48 : $P_{1288} = (7,15,3,1)$ lies on line ℓ_{11}
49 : $P_{1289} = (8,15,3,1)$ lies on line ℓ_{12}
50 : $P_{1296} = (15,15,3,1)$ lies on line ℓ_{13}
51 : $P_{1297} = (0,0,4,1)$ lies on line ℓ_0
52 : $P_{1298} = (1,0,4,1)$ lies on line ℓ_1
53 : $P_{1323} = (10,1,4,1)$ lies on line ℓ_5
54 : $P_{1352} = (7,3,4,1)$ lies on line ℓ_{15}
55 : $P_{1428} = (3,8,4,1)$ lies on line ℓ_2
56 : $P_{1461} = (4,10,4,1)$ lies on line ℓ_{14}
57 : $P_{1483} = (10,11,4,1)$ lies on line ℓ_3
58 : $P_{1491} = (2,12,4,1)$ lies on line ℓ_{12}
59 : $P_{1501} = (12,12,4,1)$ lies on line ℓ_{13}
60 : $P_{1503} = (14,12,4,1)$ lies on line ℓ_{11}
61 : $P_{1507} = (2,13,4,1)$ lies on line ℓ_6
62 : $P_{1544} = (7,15,4,1)$ lies on line ℓ_7
63 : $P_{1553} = (0,0,5,1)$ lies on line ℓ_0

64 : $P_{1554} = (1, 0, 5, 1)$ lies on line ℓ_1
65 : $P_{1604} = (3, 3, 5, 1)$ lies on line ℓ_9
66 : $P_{1613} = (12, 3, 5, 1)$ lies on line ℓ_8
67 : $P_{1616} = (15, 3, 5, 1)$ lies on line ℓ_{10}
68 : $P_{1645} = (12, 5, 5, 1)$ lies on line ℓ_6
69 : $P_{1659} = (10, 6, 5, 1)$ lies on line ℓ_7
70 : $P_{1672} = (7, 7, 5, 1)$ lies on line ℓ_{13}
71 : $P_{1675} = (10, 7, 5, 1)$ lies on line ℓ_{12}
72 : $P_{1678} = (13, 7, 5, 1)$ lies on line ℓ_{11}
73 : $P_{1695} = (14, 8, 5, 1)$ lies on line ℓ_3
74 : $P_{1728} = (15, 10, 5, 1)$ lies on line ℓ_2
75 : $P_{1750} = (5, 12, 5, 1)$ lies on line ℓ_{15}
76 : $P_{1767} = (6, 13, 5, 1)$ lies on line ℓ_4
77 : $P_{1809} = (0, 0, 6, 1)$ lies on line ℓ_0
78 : $P_{1810} = (1, 0, 6, 1)$ lies on line ℓ_1
79 : $P_{1837} = (12, 1, 6, 1)$ lies on line ℓ_4
80 : $P_{1860} = (3, 3, 6, 1)$ lies on line ℓ_{13}
81 : $P_{1865} = (8, 3, 6, 1)$ lies on line ℓ_{11}
82 : $P_{1868} = (11, 3, 6, 1)$ lies on line ℓ_{12}
83 : $P_{1986} = (1, 11, 6, 1)$ lies on line ℓ_5
84 : $P_{2003} = (2, 12, 6, 1)$ lies on line ℓ_2
85 : $P_{2019} = (2, 13, 6, 1)$ lies on line ℓ_3
86 : $P_{2059} = (10, 15, 6, 1)$ lies on line ℓ_{14}
87 : $P_{2065} = (0, 0, 7, 1)$ lies on line ℓ_0
88 : $P_{2066} = (1, 0, 7, 1)$ lies on line ℓ_1
89 : $P_{2094} = (13, 1, 7, 1)$ lies on line ℓ_{14}
90 : $P_{2155} = (10, 5, 7, 1)$ lies on line ℓ_4
91 : $P_{2196} = (3, 8, 7, 1)$ lies on line ℓ_{12}
92 : $P_{2201} = (8, 8, 7, 1)$ lies on line ℓ_{13}
93 : $P_{2204} = (11, 8, 7, 1)$ lies on line ℓ_{11}
94 : $P_{2242} = (1, 11, 7, 1)$ lies on line ℓ_{15}
95 : $P_{2266} = (9, 12, 7, 1)$ lies on line ℓ_6
96 : $P_{2282} = (9, 13, 7, 1)$ lies on line ℓ_7
97 : $P_{2321} = (0, 0, 8, 1)$ lies on line ℓ_0
98 : $P_{2322} = (1, 0, 8, 1)$ lies on line ℓ_1
99 : $P_{2404} = (3, 5, 8, 1)$ lies on line ℓ_{11}
100 : $P_{2406} = (5, 5, 8, 1)$ lies on line ℓ_{13}
101 : $P_{2407} = (6, 5, 8, 1)$ lies on line ℓ_{12}
102 : $P_{2425} = (8, 6, 8, 1)$ lies on line ℓ_3
103 : $P_{2446} = (13, 7, 8, 1)$ lies on line ℓ_7
104 : $P_{2455} = (6, 8, 8, 1)$ lies on line ℓ_{15}
105 : $P_{2500} = (3, 11, 8, 1)$ lies on line ℓ_4
106 : $P_{2520} = (7, 12, 8, 1)$ lies on line ℓ_8
107 : $P_{2524} = (11, 12, 8, 1)$ lies on line ℓ_{10}
108 : $P_{2525} = (12, 12, 8, 1)$ lies on line ℓ_9
109 : $P_{2540} = (11, 13, 8, 1)$ lies on line ℓ_{14}
110 : $P_{2563} = (2, 15, 8, 1)$ lies on line ℓ_5
111 : $P_{2577} = (0, 0, 9, 1)$ lies on line ℓ_0
112 : $P_{2578} = (1, 0, 9, 1)$ lies on line ℓ_1
113 : $P_{2604} = (11, 1, 9, 1)$ lies on line ℓ_6
114 : $P_{2637} = (12, 3, 9, 1)$ lies on line ℓ_{14}
115 : $P_{2669} = (12, 5, 9, 1)$ lies on line ℓ_3
116 : $P_{2675} = (2, 6, 9, 1)$ lies on line ℓ_8
117 : $P_{2677} = (4, 6, 9, 1)$ lies on line ℓ_{10}
118 : $P_{2679} = (6, 6, 9, 1)$ lies on line ℓ_9
119 : $P_{2693} = (4, 7, 9, 1)$ lies on line ℓ_{15}
120 : $P_{2748} = (11, 10, 9, 1)$ lies on line ℓ_5
121 : $P_{2762} = (9, 11, 9, 1)$ lies on line ℓ_2
122 : $P_{2822} = (5, 15, 9, 1)$ lies on line ℓ_4
123 : $P_{2834} = (1, 0, 10, 1)$ lies on line ℓ_1
124 : $P_{2850} = (1, 1, 10, 1)$ lies on line ℓ_9
125 : $P_{2861} = (12, 1, 10, 1)$ lies on line ℓ_{10}
126 : $P_{2862} = (13, 1, 10, 1)$ lies on line ℓ_8
127 : $P_{2896} = (15, 3, 10, 1)$ lies on line ℓ_4
128 : $P_{2922} = (9, 5, 10, 1)$ lies on line ℓ_5
129 : $P_{2966} = (5, 8, 10, 1)$ lies on line ℓ_{14}
130 : $P_{2998} = (5, 10, 10, 1)$ lies on line ℓ_{11}
131 : $P_{3003} = (10, 10, 10, 1)$ lies on line ℓ_{13}
132 : $P_{3008} = (15, 10, 10, 1)$ lies on line ℓ_{12}
133 : $P_{3039} = (14, 12, 10, 1)$ lies on line ℓ_7
134 : $P_{3045} = (4, 13, 10, 1)$ lies on line ℓ_2
135 : $P_{3075} = (2, 15, 10, 1)$ lies on line ℓ_{15}
136 : $P_{3090} = (1, 0, 11, 1)$ lies on line ℓ_1
137 : $P_{3106} = (1, 1, 11, 1)$ lies on line ℓ_{13}
138 : $P_{3111} = (6, 1, 11, 1)$ lies on line ℓ_{11}
139 : $P_{3112} = (7, 1, 11, 1)$ lies on line ℓ_{12}
140 : $P_{3141} = (4, 3, 11, 1)$ lies on line ℓ_3
141 : $P_{3172} = (3, 5, 11, 1)$ lies on line ℓ_7
142 : $P_{3187} = (2, 6, 11, 1)$ lies on line ℓ_{14}
143 : $P_{3210} = (9, 7, 11, 1)$ lies on line ℓ_4
144 : $P_{3231} = (14, 8, 11, 1)$ lies on line ℓ_6
145 : $P_{3268} = (3, 11, 11, 1)$ lies on line ℓ_{10}
146 : $P_{3273} = (8, 11, 11, 1)$ lies on line ℓ_8
147 : $P_{3276} = (11, 11, 11, 1)$ lies on line ℓ_9
148 : $P_{3337} = (8, 15, 11, 1)$ lies on line ℓ_2
149 : $P_{3345} = (0, 0, 12, 1)$ lies on line ℓ_0
150 : $P_{3346} = (1, 0, 12, 1)$ lies on line ℓ_1
151 : $P_{3368} = (7, 1, 12, 1)$ lies on line ℓ_2
152 : $P_{3455} = (14, 6, 12, 1)$ lies on line ℓ_{15}
153 : $P_{3471} = (14, 7, 12, 1)$ lies on line ℓ_{14}
154 : $P_{3484} = (11, 8, 12, 1)$ lies on line ℓ_7
155 : $P_{3506} = (1, 10, 12, 1)$ lies on line ℓ_3
156 : $P_{3590} = (5, 15, 12, 1)$ lies on line ℓ_{10}
157 : $P_{3595} = (10, 15, 12, 1)$ lies on line ℓ_8
158 : $P_{3600} = (15, 15, 12, 1)$ lies on line ℓ_9
159 : $P_{3601} = (0, 0, 13, 1)$ lies on line ℓ_0
160 : $P_{3602} = (1, 0, 13, 1)$ lies on line ℓ_1
161 : $P_{3623} = (6, 1, 13, 1)$ lies on line ℓ_7
162 : $P_{3660} = (11, 3, 13, 1)$ lies on line ℓ_2
163 : $P_{3686} = (5, 5, 13, 1)$ lies on line ℓ_9
164 : $P_{3691} = (10, 5, 13, 1)$ lies on line ℓ_{10}
165 : $P_{3696} = (15, 5, 13, 1)$ lies on line ℓ_8
166 : $P_{3701} = (4, 6, 13, 1)$ lies on line ℓ_4
167 : $P_{3717} = (4, 7, 13, 1)$ lies on line ℓ_5
168 : $P_{3762} = (1, 10, 13, 1)$ lies on line ℓ_6
169 : $P_{3857} = (0, 0, 14, 1)$ lies on line ℓ_0
170 : $P_{3858} = (1, 0, 14, 1)$ lies on line ℓ_1
171 : $P_{3883} = (10, 1, 14, 1)$ lies on line ℓ_{15}

172 : $P_{3913} = (8, 3, 14, 1)$ lies on line ℓ_7
173 : $P_{3943} = (6, 5, 14, 1)$ lies on line ℓ_2
174 : $P_{3991} = (6, 8, 14, 1)$ lies on line ℓ_5
175 : $P_{4031} = (14, 10, 14, 1)$ lies on line ℓ_4
176 : $P_{4043} = (10, 11, 14, 1)$ lies on line ℓ_6
177 : $P_{4058} = (9, 12, 14, 1)$ lies on line ℓ_3
178 : $P_{4069} = (4, 13, 14, 1)$ lies on line ℓ_{12}
179 : $P_{4074} = (9, 13, 14, 1)$ lies on line ℓ_{11}
180 : $P_{4078} = (13, 13, 14, 1)$ lies on line ℓ_{13}
181 : $P_{4113} = (0, 0, 15, 1)$ lies on line ℓ_0
182 : $P_{4114} = (1, 0, 15, 1)$ lies on line ℓ_1
183 : $P_{4165} = (4, 3, 15, 1)$ lies on line ℓ_6
184 : $P_{4215} = (6, 6, 15, 1)$ lies on line ℓ_{13}
185 : $P_{4219} = (10, 6, 15, 1)$ lies on line ℓ_{11}
186 : $P_{4221} = (12, 6, 15, 1)$ lies on line ℓ_{12}
187 : $P_{4235} = (10, 7, 15, 1)$ lies on line ℓ_2
188 : $P_{4246} = (5, 8, 15, 1)$ lies on line ℓ_8
189 : $P_{4249} = (8, 8, 15, 1)$ lies on line ℓ_9
190 : $P_{4254} = (13, 8, 15, 1)$ lies on line ℓ_{10}
191 : $P_{4278} = (5, 10, 15, 1)$ lies on line ℓ_7
192 : $P_{4312} = (7, 12, 15, 1)$ lies on line ℓ_{14}
193 : $P_{4336} = (15, 13, 15, 1)$ lies on line ℓ_5
194 : $P_{4366} = (13, 15, 15, 1)$ lies on line ℓ_3

The single points on the surface are:

Points on surface but on no line

The surface has 108 points not on any line:
The points on the surface but not on lines are:

0 : $P_1 = (0, 1, 0, 0)$
1 : $P_{335} = (13, 3, 0, 1)$
2 : $P_{361} = (7, 5, 0, 1)$
3 : $P_{414} = (12, 8, 0, 1)$
4 : $P_{520} = (6, 15, 0, 1)$
5 : $P_{546} = (0, 1, 1, 1)$
6 : $P_{568} = (7, 2, 1, 1)$
7 : $P_{571} = (10, 2, 1, 1)$
8 : $P_{604} = (11, 4, 1, 1)$
9 : $P_{605} = (12, 4, 1, 1)$
10 : $P_{679} = (6, 9, 1, 1)$
11 : $P_{683} = (10, 9, 1, 1)$
12 : $P_{764} = (11, 14, 1, 1)$
13 : $P_{766} = (13, 14, 1, 1)$
14 : $P_{882} = (1, 6, 2, 1)$
15 : $P_{896} = (15, 6, 2, 1)$
16 : $P_{917} = (4, 8, 2, 1)$
17 : $P_{922} = (9, 8, 2, 1)$
18 : $P_{1000} = (7, 13, 2, 1)$
19 : $P_{1079} = (6, 2, 3, 1)$
20 : $P_{1082} = (9, 2, 3, 1)$
21 : $P_{1121} = (0, 5, 3, 1)$
22 : $P_{1138} = (1, 6, 3, 1)$
23 : $P_{1150} = (13, 6, 3, 1)$
24 : $P_{1277} = (12, 14, 3, 1)$
25 : $P_{1421} = (12, 7, 4, 1)$
26 : $P_{1506} = (1, 13, 4, 1)$
27 : $P_{1508} = (3, 13, 4, 1)$
28 : $P_{1546} = (9, 15, 4, 1)$
29 : $P_{1551} = (14, 15, 4, 1)$
30 : $P_{1591} = (6, 2, 5, 1)$
31 : $P_{1630} = (13, 4, 5, 1)$
32 : $P_{1631} = (14, 4, 5, 1)$
33 : $P_{1681} = (0, 8, 5, 1)$
34 : $P_{1762} = (1, 13, 5, 1)$
35 : $P_{1768} = (7, 13, 5, 1)$
36 : $P_{1848} = (7, 2, 6, 1)$
37 : $P_{1916} = (11, 6, 6, 1)$
38 : $P_{1941} = (4, 8, 6, 1)$
39 : $P_{2009} = (8, 12, 6, 1)$
40 : $P_{2011} = (10, 12, 6, 1)$
41 : $P_{2017} = (0, 13, 6, 1)$
42 : $P_{2055} = (6, 15, 6, 1)$
43 : $P_{2061} = (12, 15, 6, 1)$
44 : $P_{2127} = (14, 3, 7, 1)$
45 : $P_{2152} = (7, 5, 7, 1)$
46 : $P_{2158} = (13, 5, 7, 1)$
47 : $P_{2188} = (11, 7, 7, 1)$
48 : $P_{2215} = (6, 9, 7, 1)$
49 : $P_{2257} = (0, 12, 7, 1)$
50 : $P_{2276} = (3, 13, 7, 1)$
51 : $P_{2283} = (10, 13, 7, 1)$
52 : $P_{2398} = (13, 4, 8, 1)$
53 : $P_{2434} = (1, 7, 8, 1)$
54 : $P_{2445} = (12, 7, 8, 1)$
55 : $P_{2467} = (2, 9, 8, 1)$
56 : $P_{2472} = (7, 9, 8, 1)$
57 : $P_{2561} = (0, 15, 8, 1)$
58 : $P_{2627} = (2, 3, 9, 1)$
59 : $P_{2639} = (14, 3, 9, 1)$
60 : $P_{2690} = (1, 7, 9, 1)$
61 : $P_{2694} = (5, 7, 9, 1)$
62 : $P_{2775} = (6, 12, 9, 1)$
63 : $P_{2874} = (9, 2, 10, 1)$

64 : $P_{2908} = (11, 4, 10, 1)$
65 : $P_{2917} = (4, 5, 10, 1)$
66 : $P_{2926} = (13, 5, 10, 1)$
67 : $P_{2979} = (2, 9, 10, 1)$
68 : $P_{3009} = (0, 11, 10, 1)$
69 : $P_{3068} = (11, 14, 10, 1)$
70 : $P_{3085} = (12, 15, 10, 1)$
71 : $P_{3087} = (14, 15, 10, 1)$
72 : $P_{3131} = (10, 2, 11, 1)$
73 : $P_{3139} = (2, 3, 11, 1)$
74 : $P_{3143} = (6, 3, 11, 1)$
75 : $P_{3167} = (14, 4, 11, 1)$
76 : $P_{3224} = (7, 8, 11, 1)$
77 : $P_{3226} = (9, 8, 11, 1)$
78 : $P_{3243} = (10, 9, 11, 1)$
79 : $P_{3249} = (0, 10, 11, 1)$
80 : $P_{3317} = (4, 14, 11, 1)$
81 : $P_{3427} = (2, 5, 12, 1)$
82 : $P_{3441} = (0, 6, 12, 1)$
83 : $P_{3462} = (5, 7, 12, 1)$
84 : $P_{3468} = (11, 7, 12, 1)$
85 : $P_{3480} = (7, 8, 12, 1)$
86 : $P_{3485} = (12, 8, 12, 1)$
87 : $P_{3547} = (10, 12, 12, 1)$
88 : $P_{3582} = (13, 14, 12, 1)$
89 : $P_{3655} = (6, 3, 13, 1)$
90 : $P_{3662} = (13, 3, 13, 1)$
91 : $P_{3677} = (12, 4, 13, 1)$
92 : $P_{3708} = (11, 6, 13, 1)$
93 : $P_{3712} = (15, 6, 13, 1)$
94 : $P_{3713} = (0, 7, 13, 1)$
95 : $P_{3819} = (10, 13, 13, 1)$
96 : $P_{3850} = (9, 15, 13, 1)$
97 : $P_{3939} = (2, 5, 14, 1)$
98 : $P_{3941} = (4, 5, 14, 1)$
99 : $P_{3966} = (13, 6, 14, 1)$
100 : $P_{4050} = (1, 12, 14, 1)$
101 : $P_{4057} = (8, 12, 14, 1)$
102 : $P_{4161} = (0, 3, 15, 1)$
103 : $P_{4264} = (7, 9, 15, 1)$
104 : $P_{4306} = (1, 12, 15, 1)$
105 : $P_{4311} = (6, 12, 15, 1)$
106 : $P_{4341} = (4, 14, 15, 1)$
107 : $P_{4349} = (12, 14, 15, 1)$

Line Intersection Graph

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0	0	1	0	1	0	1	1	0	0	1	0	0	0	1	0	1
1	1	0	1	0	1	0	0	1	1	0	1	1	1	0	1	0
2	0	1	0	0	1	0	1	1	0	1	0	0	1	0	1	1
3	1	0	0	0	1	0	1	1	1	0	0	0	1	0	0	0
4	0	1	1	1	0	0	0	1	0	0	1	0	0	1	1	1
5	1	0	0	0	0	0	0	1	0	0	1	0	1	0	1	1
6	1	0	1	1	0	0	0	0	0	0	1	1	0	0	1	0
7	0	1	1	1	1	1	0	0	0	1	0	1	0	0	1	0
8	0	1	0	1	0	0	0	0	0	1	1	1	1	0	1	1
9	1	0	1	0	0	0	0	1	1	0	1	0	0	1	0	0
10	0	1	0	0	1	1	1	0	1	1	0	1	1	0	0	0
11	0	1	0	0	0	0	1	1	1	0	1	0	1	1	0	1
12	0	1	1	1	0	1	0	0	1	0	1	1	0	1	0	0
13	1	0	0	0	1	0	0	0	0	1	0	1	1	0	1	0
14	0	1	1	0	1	1	1	1	1	0	0	0	0	1	0	0
15	1	0	1	0	1	1	0	0	1	0	0	1	0	0	0	0

Neighbor sets in the line intersection graph:
Line 0 intersects

Line	ℓ_1	ℓ_3	ℓ_5	ℓ_6	ℓ_9	ℓ_{13}	ℓ_{15}
in point	P_2	P_{2833}	P_{3089}	P_{2833}	P_{530}	P_{530}	P_{3089}

Line 1 intersects

Line	ℓ_0	ℓ_2	ℓ_4	ℓ_7	ℓ_8	ℓ_{10}	ℓ_{11}	ℓ_{12}	ℓ_{14}
in point	P_2	P_{275}	P_{275}	P_{275}	P_{531}	P_{531}	P_{531}	P_{531}	P_{275}

Line 2 intersects

Line	ℓ_1	ℓ_4	ℓ_6	ℓ_7	ℓ_9	ℓ_{12}	ℓ_{14}	ℓ_{15}
in point	P_{275}	P_{275}	P_{2470}	P_{275}	P_{2303}	P_{849}	P_{275}	P_{574}

Line 3 intersects

Line	ℓ_0	ℓ_4	ℓ_6	ℓ_7	ℓ_8	ℓ_{12}
in point	P_{2833}	P_{600}	P_{2833}	P_{1088}	P_{2295}	P_{3750}

Line 4 intersects

Line	ℓ_1	ℓ_2	ℓ_3	ℓ_7	ℓ_{10}	ℓ_{13}	ℓ_{14}	ℓ_{15}
in point	P_{275}	P_{275}	P_{600}	P_{275}	P_{1441}	P_{3379}	P_{275}	P_{4345}

Line 5 intersects

Line	ℓ_0	ℓ_7	ℓ_{10}	ℓ_{12}	ℓ_{14}	ℓ_{15}
in point	P_{3089}	P_{685}	P_{2297}	P_{3390}	P_{1620}	P_{3089}

Line 6 intersects

Line	ℓ_0	ℓ_2	ℓ_3	ℓ_{10}	ℓ_{11}	ℓ_{14}
in point	P_{2833}	P_{2470}	P_{2833}	P_{1880}	P_{3392}	P_{759}

Line 7 intersects

Line	ℓ_1	ℓ_2	ℓ_3	ℓ_4	ℓ_5	ℓ_9	ℓ_{11}	ℓ_{14}
in point	P_{275}	P_{275}	P_{1088}	P_{275}	P_{685}	P_{1877}	P_{2801}	P_{275}

Line 8 intersects

Line	ℓ_1	ℓ_3	ℓ_9	ℓ_{10}	ℓ_{11}	ℓ_{12}	ℓ_{14}	ℓ_{15}
in point	P_{531}	P_{2295}	P_{1450}	P_{531}	P_{531}	P_{531}	P_{3889}	P_{1876}

Line 9 intersects

Line	ℓ_0	ℓ_2	ℓ_7	ℓ_8	ℓ_{10}	ℓ_{13}
in point	P_{530}	P_{2303}	P_{1877}	P_{1450}	P_{3891}	P_{530}

Line 10 intersects

Line	ℓ_1	ℓ_4	ℓ_5	ℓ_6	ℓ_8	ℓ_9	ℓ_{11}	ℓ_{12}
in point	P_{531}	P_{1441}	P_{2297}	P_{1880}	P_{531}	P_{3891}	P_{531}	P_{531}

Line 11 intersects

Line	ℓ_1	ℓ_6	ℓ_7	ℓ_8	ℓ_{10}	ℓ_{12}	ℓ_{13}	ℓ_{15}
in point	P_{531}	P_{3392}	P_{2801}	P_{531}	P_{531}	P_{531}	P_{853}	P_{3757}

Line 12 intersects

Line	ℓ_1	ℓ_2	ℓ_3	ℓ_5	ℓ_8	ℓ_{10}	ℓ_{11}	ℓ_{13}
in point	P_{531}	P_{849}	P_{3750}	P_{3390}	P_{531}	P_{531}	P_{531}	P_{2815}

Line 13 intersects

Line	ℓ_0	ℓ_4	ℓ_9	ℓ_{11}	ℓ_{12}	ℓ_{14}
in point	P_{530}	P_{3379}	P_{530}	P_{853}	P_{2815}	P_{3754}

Line 14 intersects

Line	ℓ_1	ℓ_2	ℓ_4	ℓ_5	ℓ_6	ℓ_7	ℓ_8	ℓ_{13}
in point	P_{275}	P_{275}	P_{275}	P_{1620}	P_{759}	P_{275}	P_{3889}	P_{3754}

Line 15 intersects

Line	ℓ_0	ℓ_2	ℓ_4	ℓ_5	ℓ_8	ℓ_{11}
in point	P_{3089}	P_{574}	P_{4345}	P_{3089}	P_{1876}	P_{3757}

The surface has 337 points:
The points on the surface are:

$0: P_{1} = (0,1,0,0)$
$1: P_{2} = (0,0,1,0)$
$2: P_{3} = (0,0,0,1)$
$3: P_{63} = (12,2,1,0)$
$4: P_{71} = (4,3,1,0)$
$5: P_{89} = (6,4,1,0)$
$6: P_{108} = (9,5,1,0)$
$7: P_{161} = (14,8,1,0)$
$8: P_{176} = (13,9,1,0)$
$9: P_{184} = (5,10,1,0)$
$10: P_{189} = (10,10,1,0)$
$11: P_{194} = (15,10,1,0)$
$12: P_{198} = (3,11,1,0)$
$13: P_{203} = (8,11,1,0)$
$14: P_{206} = (11,11,1,0)$
$15: P_{250} = (7,14,1,0)$
$16: P_{261} = (2,15,1,0)$
$17: P_{275} = (1,0,0,1)$
$18: P_{335} = (13,3,0,1)$
$19: P_{361} = (7,5,0,1)$
$20: P_{378} = (8,6,0,1)$
$21: P_{389} = (3,7,0,1)$
$22: P_{414} = (12,8,0,1)$
$23: P_{438} = (4,10,0,1)$
$24: P_{444} = (10,10,0,1)$
$25: P_{448} = (14,10,0,1)$
$26: P_{452} = (2,11,0,1)$
$27: P_{459} = (9,11,0,1)$
$28: P_{461} = (11,11,0,1)$
$29: P_{471} = (5,12,0,1)$
$30: P_{497} = (15,13,0,1)$
$31: P_{520} = (6,15,0,1)$
$32: P_{530} = (0,0,1,1)$
$33: P_{531} = (1,0,1,1)$
$34: P_{546} = (0,1,1,1)$
$35: P_{568} = (7,2,1,1)$
$36: P_{571} = (10,2,1,1)$
$37: P_{574} = (13,2,1,1)$
$38: P_{600} = (7,4,1,1)$
$39: P_{604} = (11,4,1,1)$
$40: P_{605} = (12,4,1,1)$
$41: P_{679} = (6,9,1,1)$
$42: P_{683} = (10,9,1,1)$
$43: P_{685} = (12,9,1,1)$
$44: P_{759} = (6,14,1,1)$
$45: P_{764} = (11,14,1,1)$
$46: P_{766} = (13,14,1,1)$
$47: P_{785} = (0,0,2,1)$
$48: P_{786} = (1,0,2,1)$
$49: P_{812} = (11,1,2,1)$
$50: P_{849} = (0,4,2,1)$
$51: P_{853} = (4,4,2,1)$
$52: P_{880} = (15,5,2,1)$
$53: P_{882} = (1,6,2,1)$
$54: P_{895} = (14,6,2,1)$
$55: P_{896} = (15,6,2,1)$
$56: P_{904} = (7,7,2,1)$
$57: P_{906} = (9,7,2,1)$
$58: P_{911} = (14,7,2,1)$
$59: P_{917} = (4,8,2,1)$
$60: P_{922} = (9,8,2,1)$
$61: P_{926} = (13,8,2,1)$
$62: P_{956} = (11,10,2,1)$
$63: P_{963} = (2,11,2,1)$
$64: P_{1000} = (7,13,2,1)$
$65: P_{1038} = (13,15,2,1)$
$66: P_{1041} = (0,0,3,1)$
$67: P_{1042} = (1,0,3,1)$
$68: P_{1079} = (6,2,3,1)$
$69: P_{1082} = (9,2,3,1)$
$70: P_{1088} = (15,2,3,1)$
$71: P_{1096} = (7,3,3,1)$
$72: P_{1121} = (0,5,3,1)$
$73: P_{1130} = (9,5,3,1)$
$74: P_{1138} = (1,6,3,1)$
$75: P_{1149} = (12,6,3,1)$
$76: P_{1150} = (13,6,3,1)$
$77: P_{1156} = (3,7,3,1)$
$78: P_{1225} = (8,11,3,1)$
$79: P_{1244} = (11,12,3,1)$
$80: P_{1255} = (6,13,3,1)$
$81: P_{1260} = (11,13,3,1)$
$82: P_{1262} = (13,13,3,1)$
$83: P_{1277} = (12,14,3,1)$
$84: P_{1288} = (7,15,3,1)$
$85: P_{1289} = (8,15,3,1)$
$86: P_{1296} = (15,15,3,1)$
$87: P_{1297} = (0,0,4,1)$
$88: P_{1298} = (1,0,4,1)$
$89: P_{1323} = (10,1,4,1)$
$90: P_{1352} = (7,3,4,1)$
$91: P_{1421} = (12,7,4,1)$
$92: P_{1428} = (3,8,4,1)$
$93: P_{1441} = (0,9,4,1)$
$94: P_{1450} = (9,9,4,1)$
$95: P_{1461} = (4,10,4,1)$
$96: P_{1483} = (10,11,4,1)$
$97: P_{1491} = (2,12,4,1)$
$98: P_{1501} = (12,12,4,1)$
$99: P_{1503} = (14,12,4,1)$
$100: P_{1506} = (1,13,4,1)$
$101: P_{1507} = (2,13,4,1)$
$102: P_{1508} = (3,13,4,1)$
$103: P_{1544} = (7,15,4,1)$
$104: P_{1546} = (9,15,4,1)$
$105: P_{1551} = (14,15,4,1)$
$106: P_{1553} = (0,0,5,1)$
$107: P_{1554} = (1,0,5,1)$
$108: P_{1591} = (6,2,5,1)$
$109: P_{1604} = (3,3,5,1)$
$110: P_{1613} = (12,3,5,1)$
$111: P_{1616} = (15,3,5,1)$
$112: P_{1620} = (3,4,5,1)$
$113: P_{1630} = (13,4,5,1)$
$114: P_{1631} = (14,4,5,1)$
$115: P_{1645} = (12,5,5,1)$
$116: P_{1659} = (10,6,5,1)$
$117: P_{1672} = (7,7,5,1)$
$118: P_{1675} = (10,7,5,1)$
$119: P_{1678} = (13,7,5,1)$
$120: P_{1681} = (0,8,5,1)$
$121: P_{1695} = (14,8,5,1)$
$122: P_{1728} = (15,10,5,1)$
$123: P_{1750} = (5,12,5,1)$
$124: P_{1762} = (1,13,5,1)$
$125: P_{1767} = (6,13,5,1)$
$126: P_{1768} = (7,13,5,1)$
$127: P_{1809} = (0,0,6,1)$
$128: P_{1810} = (1,0,6,1)$
$129: P_{1837} = (12,1,6,1)$
$130: P_{1848} = (7,2,6,1)$
$131: P_{1860} = (3,3,6,1)$
$132: P_{1865} = (8,3,6,1)$
$133: P_{1868} = (11,3,6,1)$
$134: P_{1876} = (3,4,6,1)$
$135: P_{1877} = (4,4,6,1)$
$136: P_{1880} = (7,4,6,1)$
$137: P_{1916} = (11,6,6,1)$
$138: P_{1941} = (4,8,6,1)$
$139: P_{1986} = (1,11,6,1)$
$140: P_{2003} = (2,12,6,1)$
$141: P_{2009} = (8,12,6,1)$
$142: P_{2011} = (10,12,6,1)$
$143: P_{2017} = (0,13,6,1)$
$144: P_{2019} = (2,13,6,1)$
$145: P_{2055} = (6,15,6,1)$
$146: P_{2059} = (10,15,6,1)$
$147: P_{2061} = (12,15,6,1)$
$148: P_{2065} = (0,0,7,1)$
$149: P_{2066} = (1,0,7,1)$
$150: P_{2094} = (13,1,7,1)$
$151: P_{2127} = (14,3,7,1)$
$152: P_{2152} = (7,5,7,1)$
$153: P_{2155} = (10,5,7,1)$
$154: P_{2158} = (13,5,7,1)$
$155: P_{2188} = (11,7,7,1)$
$156: P_{2196} = (3,8,7,1)$
$157: P_{2201} = (8,8,7,1)$
$158: P_{2204} = (11,8,7,1)$
$159: P_{2215} = (6,9,7,1)$
$160: P_{2242} = (1,11,7,1)$
$161: P_{2257} = (0,12,7,1)$

$162: P_{2266} = (9, 12, 7, 1)$
$163: P_{2276} = (3, 13, 7, 1)$
$164: P_{2282} = (9, 13, 7, 1)$
$165: P_{2283} = (10, 13, 7, 1)$
$166: P_{2295} = (6, 14, 7, 1)$
$167: P_{2297} = (8, 14, 7, 1)$
$168: P_{2303} = (14, 14, 7, 1)$
$169: P_{2321} = (0, 0, 8, 1)$
$170: P_{2322} = (1, 0, 8, 1)$
$171: P_{2398} = (13, 4, 8, 1)$
$172: P_{2404} = (3, 5, 8, 1)$
$173: P_{2406} = (5, 5, 8, 1)$
$174: P_{2407} = (6, 5, 8, 1)$
$175: P_{2425} = (8, 6, 8, 1)$
$176: P_{2434} = (1, 7, 8, 1)$
$177: P_{2445} = (12, 7, 8, 1)$
$178: P_{2446} = (13, 7, 8, 1)$
$179: P_{2455} = (6, 8, 8, 1)$
$180: P_{2467} = (2, 9, 8, 1)$
$181: P_{2470} = (5, 9, 8, 1)$
$182: P_{2472} = (7, 9, 8, 1)$
$183: P_{2500} = (3, 11, 8, 1)$
$184: P_{2520} = (7, 12, 8, 1)$
$185: P_{2524} = (11, 12, 8, 1)$
$186: P_{2525} = (12, 12, 8, 1)$
$187: P_{2540} = (11, 13, 8, 1)$
$188: P_{2561} = (0, 15, 8, 1)$
$189: P_{2563} = (2, 15, 8, 1)$
$190: P_{2577} = (0, 0, 9, 1)$
$191: P_{2578} = (1, 0, 9, 1)$
$192: P_{2604} = (11, 1, 9, 1)$
$193: P_{2627} = (2, 3, 9, 1)$
$194: P_{2637} = (12, 3, 9, 1)$
$195: P_{2639} = (14, 3, 9, 1)$
$196: P_{2669} = (12, 5, 9, 1)$
$197: P_{2675} = (2, 6, 9, 1)$
$198: P_{2677} = (4, 6, 9, 1)$
$199: P_{2679} = (6, 6, 9, 1)$
$200: P_{2690} = (1, 7, 9, 1)$
$201: P_{2693} = (4, 7, 9, 1)$
$202: P_{2694} = (5, 7, 9, 1)$
$203: P_{2748} = (11, 10, 9, 1)$
$204: P_{2762} = (9, 11, 9, 1)$
$205: P_{2775} = (6, 12, 9, 1)$
$206: P_{2801} = (0, 14, 9, 1)$
$207: P_{2815} = (14, 14, 9, 1)$
$208: P_{2822} = (5, 15, 9, 1)$
$209: P_{2833} = (0, 0, 10, 1)$
$210: P_{2834} = (1, 0, 10, 1)$
$211: P_{2850} = (1, 1, 10, 1)$
$212: P_{2861} = (12, 1, 10, 1)$
$213: P_{2862} = (13, 1, 10, 1)$
$214: P_{2874} = (9, 2, 10, 1)$
$215: P_{2896} = (15, 3, 10, 1)$
$216: P_{2908} = (11, 4, 10, 1)$
$217: P_{2917} = (4, 5, 10, 1)$
$218: P_{2922} = (9, 5, 10, 1)$
$219: P_{2926} = (13, 5, 10, 1)$
$220: P_{2966} = (5, 8, 10, 1)$
$221: P_{2979} = (2, 9, 10, 1)$
$222: P_{2998} = (5, 10, 10, 1)$
$223: P_{3003} = (10, 10, 10, 1)$
$224: P_{3008} = (15, 10, 10, 1)$
$225: P_{3009} = (0, 11, 10, 1)$
$226: P_{3039} = (14, 12, 10, 1)$
$227: P_{3045} = (4, 13, 10, 1)$
$228: P_{3068} = (11, 14, 10, 1)$
$229: P_{3075} = (2, 15, 10, 1)$
$230: P_{3085} = (12, 15, 10, 1)$
$231: P_{3087} = (14, 15, 10, 1)$
$232: P_{3089} = (0, 0, 11, 1)$
$233: P_{3090} = (1, 0, 11, 1)$
$234: P_{3106} = (1, 1, 11, 1)$
$235: P_{3111} = (6, 1, 11, 1)$
$236: P_{3112} = (7, 1, 11, 1)$
$237: P_{3131} = (10, 2, 11, 1)$
$238: P_{3139} = (2, 3, 11, 1)$
$239: P_{3141} = (4, 3, 11, 1)$
$240: P_{3143} = (6, 3, 11, 1)$
$241: P_{3167} = (14, 4, 11, 1)$
$242: P_{3172} = (3, 5, 11, 1)$
$243: P_{3187} = (2, 6, 11, 1)$
$244: P_{3210} = (9, 7, 11, 1)$
$245: P_{3224} = (7, 8, 11, 1)$
$246: P_{3226} = (9, 8, 11, 1)$
$247: P_{3231} = (14, 8, 11, 1)$
$248: P_{3243} = (10, 9, 11, 1)$
$249: P_{3249} = (0, 10, 11, 1)$
$250: P_{3268} = (3, 11, 11, 1)$
$251: P_{3273} = (8, 11, 11, 1)$
$252: P_{3276} = (11, 11, 11, 1)$
$253: P_{3317} = (4, 14, 11, 1)$
$254: P_{3337} = (8, 15, 11, 1)$
$255: P_{3345} = (0, 0, 12, 1)$
$256: P_{3346} = (1, 0, 12, 1)$
$257: P_{3368} = (7, 1, 12, 1)$
$258: P_{3379} = (2, 2, 12, 1)$
$259: P_{3390} = (13, 2, 12, 1)$
$260: P_{3392} = (15, 2, 12, 1)$
$261: P_{3427} = (2, 5, 12, 1)$
$262: P_{3441} = (0, 6, 12, 1)$
$263: P_{3455} = (14, 6, 12, 1)$
$264: P_{3462} = (5, 7, 12, 1)$
$265: P_{3468} = (11, 7, 12, 1)$
$266: P_{3471} = (14, 7, 12, 1)$
$267: P_{3480} = (7, 8, 12, 1)$
$268: P_{3484} = (11, 8, 12, 1)$
$269: P_{3485} = (12, 8, 12, 1)$
$270: P_{3506} = (1, 10, 12, 1)$
$271: P_{3547} = (10, 12, 12, 1)$
$272: P_{3582} = (13, 14, 12, 1)$
$273: P_{3590} = (5, 15, 12, 1)$
$274: P_{3595} = (10, 15, 12, 1)$
$275: P_{3600} = (15, 15, 12, 1)$
$276: P_{3601} = (0, 0, 13, 1)$
$277: P_{3602} = (1, 0, 13, 1)$
$278: P_{3623} = (6, 1, 13, 1)$
$279: P_{3655} = (6, 3, 13, 1)$
$280: P_{3660} = (11, 3, 13, 1)$
$281: P_{3662} = (13, 3, 13, 1)$
$282: P_{3677} = (12, 4, 13, 1)$
$283: P_{3686} = (5, 5, 13, 1)$
$284: P_{3691} = (10, 5, 13, 1)$
$285: P_{3696} = (15, 5, 13, 1)$
$286: P_{3701} = (4, 6, 13, 1)$
$287: P_{3708} = (11, 6, 13, 1)$
$288: P_{3712} = (15, 6, 13, 1)$
$289: P_{3713} = (0, 7, 13, 1)$
$290: P_{3717} = (4, 7, 13, 1)$
$291: P_{3750} = (5, 9, 13, 1)$
$292: P_{3754} = (9, 9, 13, 1)$
$293: P_{3757} = (12, 9, 13, 1)$
$294: P_{3762} = (1, 10, 13, 1)$
$295: P_{3819} = (10, 13, 13, 1)$
$296: P_{3850} = (9, 15, 13, 1)$
$297: P_{3857} = (0, 0, 14, 1)$
$298: P_{3858} = (1, 0, 14, 1)$
$299: P_{3883} = (10, 1, 14, 1)$
$300: P_{3889} = (0, 2, 14, 1)$
$301: P_{3891} = (2, 2, 14, 1)$
$302: P_{3913} = (8, 3, 14, 1)$
$303: P_{3939} = (2, 5, 14, 1)$
$304: P_{3941} = (4, 5, 14, 1)$
$305: P_{3943} = (6, 5, 14, 1)$
$306: P_{3966} = (13, 6, 14, 1)$
$307: P_{3991} = (6, 8, 14, 1)$
$308: P_{4031} = (14, 10, 14, 1)$
$309: P_{4043} = (10, 11, 14, 1)$
$310: P_{4050} = (1, 12, 14, 1)$
$311: P_{4057} = (8, 12, 14, 1)$
$312: P_{4058} = (9, 12, 14, 1)$
$313: P_{4069} = (4, 13, 14, 1)$
$314: P_{4074} = (9, 13, 14, 1)$
$315: P_{4078} = (13, 13, 14, 1)$
$316: P_{4113} = (0, 0, 15, 1)$
$317: P_{4114} = (1, 0, 15, 1)$
$318: P_{4161} = (0, 3, 15, 1)$
$319: P_{4165} = (4, 3, 15, 1)$
$320: P_{4215} = (6, 6, 15, 1)$
$321: P_{4219} = (10, 6, 15, 1)$
$322: P_{4221} = (12, 6, 15, 1)$
$323: P_{4235} = (10, 7, 15, 1)$

$324: P_{4246} = (5, 8, 15, 1)$
$325: P_{4249} = (8, 8, 15, 1)$
$326: P_{4254} = (13, 8, 15, 1)$
$327: P_{4264} = (7, 9, 15, 1)$
$328: P_{4278} = (5, 10, 15, 1)$
$329: P_{4306} = (1, 12, 15, 1)$
$330: P_{4311} = (6, 12, 15, 1)$
$331: P_{4312} = (7, 12, 15, 1)$
$332: P_{4336} = (15, 13, 15, 1)$
$333: P_{4341} = (4, 14, 15, 1)$
$334: P_{4345} = (8, 14, 15, 1)$
$335: P_{4349} = (12, 14, 15, 1)$
$336: P_{4366} = (13, 15, 15, 1)$