Rank-76291 over GF(16)

January 15, 2021

The equation

The equation of the surface is :

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

(0, 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 286331157

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:

$0:\ P_0 = \mathbf{P}(1,0,0,0) = \mathbf{P}(1,0,0,0)$
$1:\ P_{20} = \mathbf{P}(1,0,1,0) = \mathbf{P}(1,0,1,0)$

The 16 Lines

The lines and their Pluecker coordinates are:

$$\ell_0 = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \end{bmatrix}_0 = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \end{bmatrix}_0 = \mathbf{Pl}(1,0,0,0,0,0)_0$$

$$\ell_1 = \left[\begin{array}{cccc} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{array}\right]_{256} = \left[\begin{array}{cccc} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{array}\right]_{256} = \mathbf{Pl}(0,0,1,0,0,0)_2$$

$$\ell_2 = \left[\begin{array}{cccc} 1 & 0 & 1 & 0 \\ 0 & 1 & 0 & 0 \end{array}\right]_{273} = \left[\begin{array}{cccc} 1 & 0 & 1 & 0 \\ 0 & 1 & 0 & 0 \end{array}\right]_{273} = \mathbf{Pl}(1,0,0,0,0,1)_{4626}$$

$$\ell_3 = \left[\begin{array}{cccc} 1 & 0 & 0 & 0 \\ 0 & 1 & 1 & 1 \end{array}\right]_{17} = \left[\begin{array}{cccc} 1 & 0 & 0 & 0 \\ 0 & 1 & 1 & 1 \end{array}\right]_{17} = \mathbf{Pl}(1,0,1,0,1,0)_{321}$$

$$\ell_4 = \left[\begin{array}{cccc} 1 & 0 & 0 & 0 \\ 0 & 1 & \delta^5 & \delta^{10} \end{array}\right]_{171} = \left[\begin{array}{cccc} 1 & 0 & 0 & 0 \\ 0 & 1 & 11 & 10 \end{array}\right]_{171} = \mathbf{Pl}(11,0,10,0,1,0)_{610}$$

$$\ell_5 = \left[\begin{array}{cccc} 1 & 0 & 0 & 0 \\ 0 & 1 & \delta^{10} & \delta^5 \end{array}\right]_{186} = \left[\begin{array}{cccc} 1 & 0 & 0 & 0 \\ 0 & 1 & 10 & 11 \end{array}\right]_{186} = \mathbf{Pl}(10,0,11,0,1,0)_{640}$$

$$\ell_6 = \left[\begin{array}{cccc} 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{array}\right]_{70160} = \left[\begin{array}{cccc} 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{array}\right]_{70160} = \mathbf{Pl}(0,1,0,0,0,0)_1$$

$$\ell_7 = \left[\begin{array}{cccc} 1 & 1 & 0 & 0 \\ 0 & 0 & 1 & 1 \end{array}\right]_{530} = \left[\begin{array}{cccc} 1 & 1 & 0 & 0 \\ 0 & 0 & 1 & 1 \end{array}\right]_{530} = \mathbf{Pl}(0,0,1,1,1,1)_{9426}$$

$$\ell_8 = \left[\begin{array}{cccc} 1 & \delta^5 & 0 & 0 \\ 0 & 0 & 1 & \delta^{10} \end{array}\right]_{3269} = \left[\begin{array}{cccc} 1 & 11 & 0 & 0 \\ 0 & 0 & 1 & 10 \end{array}\right]_{3269} = \mathbf{Pl}(0,0,11,10,11,1)_{50536}$$

$$\ell_9 = \left[\begin{array}{cccc} 1 & \delta^{10} & 0 & 0 \\ 0 & 0 & 1 & \delta^5 \end{array}\right]_{2997} = \left[\begin{array}{cccc} 1 & 10 & 0 & 0 \\ 0 & 0 & 1 & 11 \end{array}\right]_{2997} = \mathbf{Pl}(0,0,10,11,10,1)_{46425}$$

$$\ell_{10} = \left[\begin{array}{cccc} 1 & 0 & 1 & 0 \\ 0 & 1 & 1 & 1 \end{array}\right]_{290} = \left[\begin{array}{cccc} 1 & 0 & 1 & 0 \\ 0 & 1 & 1 & 1 \end{array}\right]_{290} = \mathbf{Pl}(1,1,1,0,1,1)_{8976}$$

$$\ell_{11} = \left[\begin{array}{cccc} 1 & 0 & 1 & 0 \\ 0 & 1 & \delta^{10} & \delta^5 \end{array}\right]_{459} = \left[\begin{array}{cccc} 1 & 0 & 1 & 0 \\ 0 & 1 & 10 & 11 \end{array}\right]_{459} = \mathbf{Pl}(10,11,11,0,11,1)_{49935}$$

$$\ell_{12} = \left[\begin{array}{cccc} 1 & 0 & 1 & 0 \\ 0 & 1 & \delta^5 & \delta^{10} \end{array}\right]_{444} = \left[\begin{array}{cccc} 1 & 0 & 1 & 0 \\ 0 & 1 & 11 & 10 \end{array}\right]_{444} = \mathbf{Pl}(11,10,10,0,10,1)_{45841}$$

$$\ell_{13} = \left[\begin{array}{cccc} 1 & 1 & 0 & 1 \\ 0 & 0 & 1 & 1 \end{array}\right]_{4898} = \left[\begin{array}{cccc} 1 & 1 & 0 & 1 \\ 0 & 0 & 1 & 1 \end{array}\right]_{4898} = \mathbf{Pl}(0,1,1,1,1,1)_{9442}$$

$$\ell_{14} = \left[\begin{array}{cccc} 1 & \delta^{10} & 0 & \delta^5 \\ 0 & 0 & 1 & \delta^5 \end{array}\right]_{51045} = \left[\begin{array}{cccc} 1 & 10 & 0 & 11 \\ 0 & 0 & 1 & 11 \end{array}\right]_{51045} = \mathbf{Pl}(0,10,10,11,10,1)_{46450}$$

$$\ell_{15} = \left[\begin{array}{cccc} 1 & \delta^5 & 0 & \delta^{10} \\ 0 & 0 & 1 & \delta^{10} \end{array}\right]_{46949} = \left[\begin{array}{cccc} 1 & 11 & 0 & 10 \\ 0 & 0 & 1 & 10 \end{array}\right]_{46949} = \mathbf{Pl}(0,11,11,10,11,1)_{50562}$$

Rank of lines: (0, 256, 273, 17, 171, 186, 70160, 530, 3269, 2997, 290, 459, 444, 4898, 51045, 46949)
Rank of points on Klein quadric: (0, 2, 4626, 321, 610, 640, 1, 9426, 50536, 46425, 8976, 49935, 45841, 9442, 46450, 50562)

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:

$P_1 = (0,1,0,0) = \ell_0 \cap \ell_2$
$P_5 = (1,1,0,0) = \ell_0 \cap \ell_7$
$P_{14} = (10,1,0,0) = \ell_0 \cap \ell_8$
$P_{15} = (11,1,0,0) = \ell_0 \cap \ell_9$
$P_2 = (0,0,1,0) = \ell_1 \cap \ell_6$
$P_{36} = (1,1,1,0) = \ell_2 \cap \ell_{13}$
$P_{180} = (1,10,1,0) = \ell_2 \cap \ell_{14}$
$P_{196} = (1,11,1,0) = \ell_2 \cap \ell_{15}$
$P_4 = (1,1,1,1) = \ell_3 \cap \ell_7$
$P_{546} = (0,1,1,1) = \ell_3 \cap \ell_{10}$
$P_{556} = (11,1,1,1) = \ell_3 \cap \ell_{14}$
$P_{555} = (10,1,1,1) = \ell_3 \cap \ell_{15}$
$P_{3019} = (10,11,10,1) = \ell_4 \cap \ell_9$
$P_{3009} = (0,11,10,1) = \ell_4 \cap \ell_{12}$
$P_{3020} = (11,11,10,1) = \ell_4 \cap \ell_{13}$
$P_{3010} = (1,11,10,1) = \ell_4 \cap \ell_{15}$
$P_{3260} = (11,10,11,1) = \ell_5 \cap \ell_8$
$P_{3249} = (0,10,11,1) = \ell_5 \cap \ell_{11}$
$P_{3259} = (10,10,11,1) = \ell_5 \cap \ell_{13}$
$P_{3250} = (1,10,11,1) = \ell_5 \cap \ell_{14}$
$P_{699} = (10,10,1,1) = \ell_7 \cap \ell_{11}$
$P_{716} = (11,11,1,1) = \ell_7 \cap \ell_{12}$
$P_{3115} = (10,1,11,1) = \ell_8 \cap \ell_{10}$
$P_{3266} = (1,11,11,1) = \ell_8 \cap \ell_{12}$
$P_{2860} = (11,1,10,1) = \ell_9 \cap \ell_{10}$
$P_{2994} = (1,10,10,1) = \ell_9 \cap \ell_{11}$
$P_{291} = (1,1,0,1) = \ell_{10} \cap \ell_{13}$
$P_{445} = (11,10,0,1) = \ell_{11} \cap \ell_{15}$
$P_{460} = (10,11,0,1) = \ell_{12} \cap \ell_{14}$

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_6
1 : $P_6 = (2,1,0,0)$ lies on line ℓ_0
2 : $P_7 = (3,1,0,0)$ lies on line ℓ_0
3 : $P_8 = (4,1,0,0)$ lies on line ℓ_0
4 : $P_9 = (5,1,0,0)$ lies on line ℓ_0
5 : $P_{10} = (6,1,0,0)$ lies on line ℓ_0
6 : $P_{11} = (7,1,0,0)$ lies on line ℓ_0
7 : $P_{12} = (8,1,0,0)$ lies on line ℓ_0
8 : $P_{13} = (9,1,0,0)$ lies on line ℓ_0
9 : $P_{16} = (12,1,0,0)$ lies on line ℓ_0
10 : $P_{17} = (13,1,0,0)$ lies on line ℓ_0
11 : $P_{18} = (14,1,0,0)$ lies on line ℓ_0
12 : $P_{19} = (15,1,0,0)$ lies on line ℓ_0
13 : $P_{21} = (2,0,1,0)$ lies on line ℓ_1
14 : $P_{22} = (3,0,1,0)$ lies on line ℓ_1
15 : $P_{23} = (4,0,1,0)$ lies on line ℓ_1
16 : $P_{24} = (5,0,1,0)$ lies on line ℓ_1
17 : $P_{25} = (6,0,1,0)$ lies on line ℓ_1
18 : $P_{26} = (7,0,1,0)$ lies on line ℓ_1
19 : $P_{27} = (8,0,1,0)$ lies on line ℓ_1
20 : $P_{28} = (9,0,1,0)$ lies on line ℓ_1
21 : $P_{29} = (10,0,1,0)$ lies on line ℓ_1
22 : $P_{30} = (11,0,1,0)$ lies on line ℓ_1
23 : $P_{31} = (12,0,1,0)$ lies on line ℓ_1
24 : $P_{32} = (13,0,1,0)$ lies on line ℓ_1
25 : $P_{33} = (14,0,1,0)$ lies on line ℓ_1
26 : $P_{34} = (15,0,1,0)$ lies on line ℓ_1
27 : $P_{52} = (1,2,1,0)$ lies on line ℓ_2
28 : $P_{68} = (1,3,1,0)$ lies on line ℓ_2
29 : $P_{84} = (1,4,1,0)$ lies on line ℓ_2
30 : $P_{100} = (1,5,1,0)$ lies on line ℓ_2
31 : $P_{116} = (1,6,1,0)$ lies on line ℓ_2
32 : $P_{132} = (1,7,1,0)$ lies on line ℓ_2
33 : $P_{148} = (1,8,1,0)$ lies on line ℓ_2
34 : $P_{164} = (1,9,1,0)$ lies on line ℓ_2
35 : $P_{212} = (1,12,1,0)$ lies on line ℓ_2
36 : $P_{228} = (1,13,1,0)$ lies on line ℓ_2
37 : $P_{244} = (1,14,1,0)$ lies on line ℓ_2
38 : $P_{260} = (1,15,1,0)$ lies on line ℓ_2
39 : $P_{547} = (2,1,1,1)$ lies on line ℓ_3
40 : $P_{548} = (3,1,1,1)$ lies on line ℓ_3
41 : $P_{549} = (4,1,1,1)$ lies on line ℓ_3
42 : $P_{550} = (5,1,1,1)$ lies on line ℓ_3
43 : $P_{551} = (6,1,1,1)$ lies on line ℓ_3
44 : $P_{552} = (7,1,1,1)$ lies on line ℓ_3
45 : $P_{553} = (8,1,1,1)$ lies on line ℓ_3
46 : $P_{554} = (9,1,1,1)$ lies on line ℓ_3
47 : $P_{557} = (12,1,1,1)$ lies on line ℓ_3
48 : $P_{558} = (13,1,1,1)$ lies on line ℓ_3
49 : $P_{559} = (14,1,1,1)$ lies on line ℓ_3
50 : $P_{560} = (15,1,1,1)$ lies on line ℓ_3
51 : $P_{563} = (2,2,1,1)$ lies on line ℓ_7
52 : $P_{580} = (3,3,1,1)$ lies on line ℓ_7
53 : $P_{597} = (4,4,1,1)$ lies on line ℓ_7
54 : $P_{614} = (5,5,1,1)$ lies on line ℓ_7
55 : $P_{631} = (6,6,1,1)$ lies on line ℓ_7
56 : $P_{648} = (7,7,1,1)$ lies on line ℓ_7
57 : $P_{665} = (8,8,1,1)$ lies on line ℓ_7
58 : $P_{682} = (9,9,1,1)$ lies on line ℓ_7
59 : $P_{733} = (12,12,1,1)$ lies on line ℓ_7
60 : $P_{750} = (13,13,1,1)$ lies on line ℓ_7
61 : $P_{767} = (14,14,1,1)$ lies on line ℓ_7
62 : $P_{784} = (15,15,1,1)$ lies on line ℓ_7
63 : $P_{785} = (0,0,2,1)$ lies on line ℓ_6

64 : $P_{804} = (3, 1, 2, 1)$ lies on line ℓ_{10}
65 : $P_{836} = (3, 3, 2, 1)$ lies on line ℓ_{13}
66 : $P_{874} = (9, 5, 2, 1)$ lies on line ℓ_{15}
67 : $P_{889} = (8, 6, 2, 1)$ lies on line ℓ_{14}
68 : $P_{954} = (9, 10, 2, 1)$ lies on line ℓ_{11}
69 : $P_{969} = (8, 11, 2, 1)$ lies on line ℓ_{12}
70 : $P_{1041} = (0, 0, 3, 1)$ lies on line ℓ_{6}
71 : $P_{1059} = (2, 1, 3, 1)$ lies on line ℓ_{10}
72 : $P_{1075} = (2, 2, 3, 1)$ lies on line ℓ_{13}
73 : $P_{1209} = (8, 10, 3, 1)$ lies on line ℓ_{11}
74 : $P_{1226} = (9, 11, 3, 1)$ lies on line ℓ_{12}
75 : $P_{1242} = (9, 12, 3, 1)$ lies on line ℓ_{14}
76 : $P_{1273} = (8, 14, 3, 1)$ lies on line ℓ_{15}
77 : $P_{1297} = (0, 0, 4, 1)$ lies on line ℓ_{6}
78 : $P_{1318} = (5, 1, 4, 1)$ lies on line ℓ_{10}
79 : $P_{1382} = (5, 5, 4, 1)$ lies on line ℓ_{13}
80 : $P_{1439} = (14, 8, 4, 1)$ lies on line ℓ_{14}
81 : $P_{1472} = (15, 10, 4, 1)$ lies on line ℓ_{11}
82 : $P_{1487} = (14, 11, 4, 1)$ lies on line ℓ_{12}
83 : $P_{1520} = (15, 13, 4, 1)$ lies on line ℓ_{15}
84 : $P_{1553} = (0, 0, 5, 1)$ lies on line ℓ_{6}
85 : $P_{1573} = (4, 1, 5, 1)$ lies on line ℓ_{10}
86 : $P_{1600} = (15, 2, 5, 1)$ lies on line ℓ_{14}
87 : $P_{1621} = (4, 4, 5, 1)$ lies on line ℓ_{13}
88 : $P_{1663} = (14, 6, 5, 1)$ lies on line ℓ_{15}
89 : $P_{1727} = (14, 10, 5, 1)$ lies on line ℓ_{11}
90 : $P_{1744} = (15, 11, 5, 1)$ lies on line ℓ_{12}
91 : $P_{1809} = (0, 0, 6, 1)$ lies on line ℓ_{6}
92 : $P_{1832} = (7, 1, 6, 1)$ lies on line ℓ_{10}
93 : $P_{1854} = (13, 2, 6, 1)$ lies on line ℓ_{15}
94 : $P_{1901} = (12, 5, 6, 1)$ lies on line ℓ_{14}
95 : $P_{1928} = (7, 7, 6, 1)$ lies on line ℓ_{13}
96 : $P_{1982} = (13, 10, 6, 1)$ lies on line ℓ_{11}
97 : $P_{1997} = (12, 11, 6, 1)$ lies on line ℓ_{12}
98 : $P_{2065} = (0, 0, 7, 1)$ lies on line ℓ_{6}
99 : $P_{2087} = (6, 1, 7, 1)$ lies on line ℓ_{10}
100 : $P_{2167} = (6, 6, 7, 1)$ lies on line ℓ_{13}
101 : $P_{2221} = (12, 9, 7, 1)$ lies on line ℓ_{15}
102 : $P_{2237} = (12, 10, 7, 1)$ lies on line ℓ_{11}
103 : $P_{2254} = (13, 11, 7, 1)$ lies on line ℓ_{12}
104 : $P_{2318} = (13, 15, 7, 1)$ lies on line ℓ_{14}
105 : $P_{2321} = (0, 0, 8, 1)$ lies on line ℓ_{6}
106 : $P_{2346} = (9, 1, 8, 1)$ lies on line ℓ_{10}
107 : $P_{2388} = (3, 4, 8, 1)$ lies on line ℓ_{15}
108 : $P_{2474} = (9, 9, 8, 1)$ lies on line ℓ_{13}
109 : $P_{2484} = (3, 10, 8, 1)$ lies on line ℓ_{11}
110 : $P_{2499} = (2, 11, 8, 1)$ lies on line ℓ_{12}
111 : $P_{2531} = (2, 13, 8, 1)$ lies on line ℓ_{14}
112 : $P_{2577} = (0, 0, 9, 1)$ lies on line ℓ_{6}
113 : $P_{2601} = (8, 1, 9, 1)$ lies on line ℓ_{10}
114 : $P_{2692} = (3, 7, 9, 1)$ lies on line ℓ_{14}
115 : $P_{2713} = (8, 8, 9, 1)$ lies on line ℓ_{13}
116 : $P_{2739} = (2, 10, 9, 1)$ lies on line ℓ_{11}
117 : $P_{2756} = (3, 11, 9, 1)$ lies on line ℓ_{12}
118 : $P_{2819} = (2, 15, 9, 1)$ lies on line ℓ_{15}
119 : $P_{2880} = (15, 2, 10, 1)$ lies on line ℓ_{9}
120 : $P_{2885} = (4, 3, 10, 1)$ lies on line ℓ_{9}
121 : $P_{2904} = (7, 4, 10, 1)$ lies on line ℓ_{9}
122 : $P_{2925} = (12, 5, 10, 1)$ lies on line ℓ_{9}
123 : $P_{2937} = (8, 6, 10, 1)$ lies on line ℓ_{9}
124 : $P_{2948} = (3, 7, 10, 1)$ lies on line ℓ_{9}
125 : $P_{2975} = (14, 8, 10, 1)$ lies on line ℓ_{9}
126 : $P_{2982} = (5, 9, 10, 1)$ lies on line ℓ_{9}
127 : $P_{3011} = (2, 11, 10, 1)$ lies on line ℓ_{4}
128 : $P_{3012} = (3, 11, 10, 1)$ lies on line ℓ_{4}
129 : $P_{3013} = (4, 11, 10, 1)$ lies on line ℓ_{4}
130 : $P_{3014} = (5, 11, 10, 1)$ lies on line ℓ_{4}
131 : $P_{3015} = (6, 11, 10, 1)$ lies on line ℓ_{4}
132 : $P_{3016} = (7, 11, 10, 1)$ lies on line ℓ_{4}
133 : $P_{3017} = (8, 11, 10, 1)$ lies on line ℓ_{4}
134 : $P_{3018} = (9, 11, 10, 1)$ lies on line ℓ_{4}
135 : $P_{3021} = (12, 11, 10, 1)$ lies on line ℓ_{4}
136 : $P_{3022} = (13, 11, 10, 1)$ lies on line ℓ_{4}
137 : $P_{3023} = (14, 11, 10, 1)$ lies on line ℓ_{4}
138 : $P_{3024} = (15, 11, 10, 1)$ lies on line ℓ_{4}
139 : $P_{3034} = (9, 12, 10, 1)$ lies on line ℓ_{9}
140 : $P_{3043} = (2, 13, 10, 1)$ lies on line ℓ_{9}
141 : $P_{3063} = (6, 14, 10, 1)$ lies on line ℓ_{9}
142 : $P_{3086} = (13, 15, 10, 1)$ lies on line ℓ_{9}
143 : $P_{3134} = (13, 2, 11, 1)$ lies on line ℓ_{8}
144 : $P_{3144} = (7, 3, 11, 1)$ lies on line ℓ_{8}
145 : $P_{3156} = (3, 4, 11, 1)$ lies on line ℓ_{8}
146 : $P_{3178} = (9, 5, 11, 1)$ lies on line ℓ_{8}
147 : $P_{3199} = (14, 6, 11, 1)$ lies on line ℓ_{8}
148 : $P_{3205} = (4, 7, 11, 1)$ lies on line ℓ_{8}
149 : $P_{3223} = (6, 8, 11, 1)$ lies on line ℓ_{8}
150 : $P_{3245} = (12, 9, 11, 1)$ lies on line ℓ_{8}
151 : $P_{3251} = (2, 10, 11, 1)$ lies on line ℓ_{5}
152 : $P_{3252} = (3, 10, 11, 1)$ lies on line ℓ_{5}
153 : $P_{3253} = (4, 10, 11, 1)$ lies on line ℓ_{5}
154 : $P_{3254} = (5, 10, 11, 1)$ lies on line ℓ_{5}
155 : $P_{3255} = (6, 10, 11, 1)$ lies on line ℓ_{5}
156 : $P_{3256} = (7, 10, 11, 1)$ lies on line ℓ_{5}
157 : $P_{3257} = (8, 10, 11, 1)$ lies on line ℓ_{5}
158 : $P_{3258} = (9, 10, 11, 1)$ lies on line ℓ_{5}
159 : $P_{3261} = (12, 10, 11, 1)$ lies on line ℓ_{5}
160 : $P_{3262} = (13, 10, 11, 1)$ lies on line ℓ_{5}
161 : $P_{3263} = (14, 10, 11, 1)$ lies on line ℓ_{5}
162 : $P_{3264} = (15, 10, 11, 1)$ lies on line ℓ_{5}
163 : $P_{3286} = (5, 12, 11, 1)$ lies on line ℓ_{8}
164 : $P_{3312} = (15, 13, 11, 1)$ lies on line ℓ_{8}
165 : $P_{3321} = (8, 14, 11, 1)$ lies on line ℓ_{8}
166 : $P_{3331} = (2, 15, 11, 1)$ lies on line ℓ_{8}
167 : $P_{3345} = (0, 0, 12, 1)$ lies on line ℓ_{6}
168 : $P_{3374} = (13, 1, 12, 1)$ lies on line ℓ_{10}
169 : $P_{3400} = (7, 3, 12, 1)$ lies on line ℓ_{15}
170 : $P_{3512} = (7, 10, 12, 1)$ lies on line ℓ_{11}
171 : $P_{3527} = (6, 11, 12, 1)$ lies on line ℓ_{12}

172 : $P_{3566} = (13, 13, 12, 1)$ lies on line ℓ_{13}
173 : $P_{3575} = (6, 14, 12, 1)$ lies on line ℓ_{14}
174 : $P_{3601} = (0, 0, 13, 1)$ lies on line ℓ_{6}
175 : $P_{3629} = (12, 1, 13, 1)$ lies on line ℓ_{10}
176 : $P_{3672} = (7, 4, 13, 1)$ lies on line ℓ_{14}
177 : $P_{3735} = (6, 8, 13, 1)$ lies on line ℓ_{15}
178 : $P_{3767} = (6, 10, 13, 1)$ lies on line ℓ_{11}
179 : $P_{3784} = (7, 11, 13, 1)$ lies on line ℓ_{12}
180 : $P_{3805} = (12, 12, 13, 1)$ lies on line ℓ_{13}
181 : $P_{3857} = (0, 0, 14, 1)$ lies on line ℓ_{6}
182 : $P_{3888} = (15, 1, 14, 1)$ lies on line ℓ_{10}
183 : $P_{3909} = (4, 3, 14, 1)$ lies on line ℓ_{14}
184 : $P_{4022} = (5, 10, 14, 1)$ lies on line ℓ_{11}
185 : $P_{4037} = (4, 11, 14, 1)$ lies on line ℓ_{12}
186 : $P_{4054} = (5, 12, 14, 1)$ lies on line ℓ_{15}
187 : $P_{4112} = (15, 15, 14, 1)$ lies on line ℓ_{13}
188 : $P_{4113} = (0, 0, 15, 1)$ lies on line ℓ_{6}
189 : $P_{4143} = (14, 1, 15, 1)$ lies on line ℓ_{10}
190 : $P_{4229} = (4, 7, 15, 1)$ lies on line ℓ_{15}
191 : $P_{4262} = (5, 9, 15, 1)$ lies on line ℓ_{14}
192 : $P_{4277} = (4, 10, 15, 1)$ lies on line ℓ_{11}
193 : $P_{4294} = (5, 11, 15, 1)$ lies on line ℓ_{12}
194 : $P_{4351} = (14, 14, 15, 1)$ lies on line ℓ_{13}

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 : $P_{310} = (4, 2, 0, 1)$
1 : $P_{327} = (5, 3, 0, 1)$
2 : $P_{347} = (9, 4, 0, 1)$
3 : $P_{362} = (8, 5, 0, 1)$
4 : $P_{383} = (13, 6, 0, 1)$
5 : $P_{398} = (12, 7, 0, 1)$
6 : $P_{417} = (15, 8, 0, 1)$
7 : $P_{432} = (14, 9, 0, 1)$
8 : $P_{472} = (6, 12, 0, 1)$
9 : $P_{489} = (7, 13, 0, 1)$
10 : $P_{500} = (2, 14, 0, 1)$
11 : $P_{517} = (3, 15, 0, 1)$
12 : $P_{828} = (11, 2, 2, 1)$
13 : $P_{849} = (0, 4, 2, 1)$
14 : $P_{903} = (6, 7, 2, 1)$
15 : $P_{925} = (12, 8, 2, 1)$
16 : $P_{940} = (11, 9, 2, 1)$
17 : $P_{1005} = (12, 13, 2, 1)$
18 : $P_{1011} = (2, 14, 2, 1)$
19 : $P_{1031} = (6, 15, 2, 1)$
20 : $P_{1103} = (14, 3, 3, 1)$
21 : $P_{1120} = (15, 4, 3, 1)$
22 : $P_{1121} = (0, 5, 3, 1)$
23 : $P_{1148} = (11, 6, 3, 1)$
24 : $P_{1164} = (11, 7, 3, 1)$
25 : $P_{1200} = (15, 9, 3, 1)$
26 : $P_{1263} = (14, 13, 3, 1)$
27 : $P_{1284} = (3, 15, 3, 1)$
28 : $P_{1333} = (4, 2, 4, 1)$
29 : $P_{1358} = (13, 3, 4, 1)$
30 : $P_{1371} = (10, 4, 4, 1)$
31 : $P_{1415} = (6, 7, 4, 1)$
32 : $P_{1441} = (0, 9, 4, 1)$
33 : $P_{1502} = (13, 12, 4, 1)$
34 : $P_{1531} = (10, 14, 4, 1)$
35 : $P_{1543} = (6, 15, 4, 1)$
36 : $P_{1606} = (5, 3, 5, 1)$
37 : $P_{1635} = (2, 5, 5, 1)$
38 : $P_{1667} = (2, 7, 5, 1)$
39 : $P_{1681} = (0, 8, 5, 1)$
40 : $P_{1700} = (3, 9, 5, 1)$
41 : $P_{1755} = (10, 12, 5, 1)$
42 : $P_{1771} = (10, 13, 5, 1)$
43 : $P_{1780} = (3, 14, 5, 1)$
44 : $P_{1858} = (1, 3, 6, 1)$
45 : $P_{1914} = (9, 6, 6, 1)$
46 : $P_{1938} = (1, 8, 6, 1)$
47 : $P_{1956} = (3, 9, 6, 1)$
48 : $P_{2007} = (6, 12, 6, 1)$
49 : $P_{2017} = (0, 13, 6, 1)$
50 : $P_{2036} = (3, 14, 6, 1)$
51 : $P_{2058} = (9, 15, 6, 1)$
52 : $P_{2105} = (8, 2, 7, 1)$
53 : $P_{2114} = (1, 3, 7, 1)$
54 : $P_{2137} = (8, 4, 7, 1)$
55 : $P_{2147} = (2, 5, 7, 1)$
56 : $P_{2179} = (2, 7, 7, 1)$
57 : $P_{2194} = (1, 8, 7, 1)$
58 : $P_{2257} = (0, 12, 7, 1)$
59 : $P_{2280} = (7, 13, 7, 1)$
60 : $P_{2358} = (5, 2, 8, 1)$
61 : $P_{2409} = (8, 5, 8, 1)$
62 : $P_{2428} = (11, 6, 8, 1)$
63 : $P_{2444} = (11, 7, 8, 1)$

64 : $P_{2453} = (4, 8, 8, 1)$
65 : $P_{2517} = (4, 12, 8, 1)$
66 : $P_{2550} = (5, 14, 8, 1)$
67 : $P_{2561} = (0, 15, 8, 1)$
68 : $P_{2620} = (11, 2, 9, 1)$
69 : $P_{2638} = (13, 3, 9, 1)$
70 : $P_{2650} = (9, 4, 9, 1)$
71 : $P_{2664} = (7, 5, 9, 1)$
72 : $P_{2680} = (7, 6, 9, 1)$
73 : $P_{2732} = (11, 9, 9, 1)$
74 : $P_{2782} = (13, 12, 9, 1)$
75 : $P_{2801} = (0, 14, 9, 1)$
76 : $P_{3424} = (15, 4, 12, 1)$
77 : $P_{3426} = (1, 5, 12, 1)$
78 : $P_{3441} = (0, 6, 12, 1)$
79 : $P_{3469} = (12, 7, 12, 1)$
80 : $P_{3477} = (4, 8, 12, 1)$
81 : $P_{3504} = (15, 9, 12, 1)$
82 : $P_{3541} = (4, 12, 12, 1)$
83 : $P_{3586} = (1, 15, 12, 1)$
84 : $P_{3638} = (5, 2, 13, 1)$
85 : $P_{3663} = (14, 3, 13, 1)$
86 : $P_{3682} = (1, 5, 13, 1)$
87 : $P_{3710} = (13, 6, 13, 1)$
88 : $P_{3713} = (0, 7, 13, 1)$
89 : $P_{3823} = (14, 13, 13, 1)$
90 : $P_{3830} = (5, 14, 13, 1)$
91 : $P_{3842} = (1, 15, 13, 1)$
92 : $P_{3889} = (0, 2, 14, 1)$
93 : $P_{3931} = (10, 4, 14, 1)$
94 : $P_{3944} = (7, 5, 14, 1)$
95 : $P_{3960} = (7, 6, 14, 1)$
96 : $P_{3997} = (12, 8, 14, 1)$
97 : $P_{4015} = (14, 9, 14, 1)$
98 : $P_{4077} = (12, 13, 14, 1)$
99 : $P_{4091} = (10, 14, 14, 1)$
100 : $P_{4153} = (8, 2, 15, 1)$
101 : $P_{4161} = (0, 3, 15, 1)$
102 : $P_{4185} = (8, 4, 15, 1)$
103 : $P_{4218} = (9, 6, 15, 1)$
104 : $P_{4256} = (15, 8, 15, 1)$
105 : $P_{4315} = (10, 12, 15, 1)$
106 : $P_{4331} = (10, 13, 15, 1)$
107 : $P_{4362} = (9, 15, 15, 1)$

Line Intersection Graph

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

Neighbor sets in the line intersection graph:
Line 0 intersects

Line	ℓ_1	ℓ_2	ℓ_3	ℓ_4	ℓ_5	ℓ_7	ℓ_8	ℓ_9
in point	P_0	P_1	P_0	P_0	P_0	P_5	P_{14}	P_{15}

Line 1 intersects

Line	ℓ_0	ℓ_2	ℓ_3	ℓ_4	ℓ_5	ℓ_6	ℓ_{10}	ℓ_{11}	ℓ_{12}
in point	P_0	P_{20}	P_0	P_0	P_0	P_2	P_{20}	P_{20}	P_{20}

Line 2 intersects

Line	ℓ_0	ℓ_1	ℓ_{10}	ℓ_{11}	ℓ_{12}	ℓ_{13}	ℓ_{14}	ℓ_{15}
in point	P_1	P_{20}	P_{20}	P_{20}	P_{20}	P_{36}	P_{180}	P_{196}

Line 3 intersects

Line	ℓ_0	ℓ_1	ℓ_4	ℓ_5	ℓ_7	ℓ_{10}	ℓ_{14}	ℓ_{15}
in point	P_0	P_0	P_0	P_0	P_4	P_{546}	P_{556}	P_{555}

Line 4 intersects

Line	ℓ_0	ℓ_1	ℓ_3	ℓ_5	ℓ_9	ℓ_{12}	ℓ_{13}	ℓ_{15}
in point	P_0	P_0	P_0	P_0	P_{3019}	P_{3009}	P_{3020}	P_{3010}

Line 5 intersects

Line	ℓ_0	ℓ_1	ℓ_3	ℓ_4	ℓ_8	ℓ_{11}	ℓ_{13}	ℓ_{14}
in point	P_0	P_0	P_0	P_0	P_{3260}	P_{3249}	P_{3259}	P_{3250}

Line 6 intersects

Line	ℓ_1	ℓ_7	ℓ_8	ℓ_9	ℓ_{13}	ℓ_{14}	ℓ_{15}
in point	P_2	P_{530}	P_{3089}	P_{2833}	P_{530}	P_{2833}	P_{3089}

Line 7 intersects

Line	ℓ_0	ℓ_3	ℓ_6	ℓ_{11}	ℓ_{12}	ℓ_{13}
in point	P_5	P_4	P_{530}	P_{699}	P_{716}	P_{530}

Line 8 intersects

Line	ℓ_0	ℓ_5	ℓ_6	ℓ_{10}	ℓ_{12}	ℓ_{15}
in point	P_{14}	P_{3260}	P_{3089}	P_{3115}	P_{3266}	P_{3089}

Line 9 intersects

Line	ℓ_0	ℓ_4	ℓ_6	ℓ_{10}	ℓ_{11}	ℓ_{14}
in point	P_{15}	P_{3019}	P_{2833}	P_{2860}	P_{2994}	P_{2833}

Line 10 intersects

Line	ℓ_1	ℓ_2	ℓ_3	ℓ_8	ℓ_9	ℓ_{11}	ℓ_{12}	ℓ_{13}
in point	P_{20}	P_{20}	P_{546}	P_{3115}	P_{2860}	P_{20}	P_{20}	P_{291}

Line 11 intersects

Line	ℓ_1	ℓ_2	ℓ_5	ℓ_7	ℓ_9	ℓ_{10}	ℓ_{12}	ℓ_{15}
in point	P_{20}	P_{20}	P_{3249}	P_{699}	P_{2994}	P_{20}	P_{20}	P_{445}

Line 12 intersects

Line	ℓ_1	ℓ_2	ℓ_4	ℓ_7	ℓ_8	ℓ_{10}	ℓ_{11}	ℓ_{14}
in point	P_{20}	P_{20}	P_{3009}	P_{716}	P_{3266}	P_{20}	P_{20}	P_{460}

Line 13 intersects

Line	ℓ_2	ℓ_4	ℓ_5	ℓ_6	ℓ_7	ℓ_{10}
in point	P_{36}	P_{3020}	P_{3259}	P_{530}	P_{530}	P_{291}

Line 14 intersects

Line	ℓ_2	ℓ_3	ℓ_5	ℓ_6	ℓ_9	ℓ_{12}
in point	P_{180}	P_{556}	P_{3250}	P_{2833}	P_{2833}	P_{460}

Line 15 intersects

Line	ℓ_2	ℓ_3	ℓ_4	ℓ_6	ℓ_8	ℓ_{11}
in point	P_{196}	P_{555}	P_{3010}	P_{3089}	P_{3089}	P_{445}

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

$0: P_0 = (1,0,0,0)$
$1: P_1 = (0,1,0,0)$
$2: P_2 = (0,0,1,0)$
$3: P_3 = (0,0,0,1)$
$4: P_4 = (1,1,1,1)$
$5: P_5 = (1,1,0,0)$
$6: P_6 = (2,1,0,0)$
$7: P_7 = (3,1,0,0)$
$8: P_8 = (4,1,0,0)$
$9: P_9 = (5,1,0,0)$
$10: P_{10} = (6,1,0,0)$
$11: P_{11} = (7,1,0,0)$
$12: P_{12} = (8,1,0,0)$
$13: P_{13} = (9,1,0,0)$
$14: P_{14} = (10,1,0,0)$
$15: P_{15} = (11,1,0,0)$
$16: P_{16} = (12,1,0,0)$
$17: P_{17} = (13,1,0,0)$

18 : $P_{18} = (14, 1, 0, 0)$
19 : $P_{19} = (15, 1, 0, 0)$
20 : $P_{20} = (1, 0, 1, 0)$
21 : $P_{21} = (2, 0, 1, 0)$
22 : $P_{22} = (3, 0, 1, 0)$
23 : $P_{23} = (4, 0, 1, 0)$
24 : $P_{24} = (5, 0, 1, 0)$
25 : $P_{25} = (6, 0, 1, 0)$
26 : $P_{26} = (7, 0, 1, 0)$
27 : $P_{27} = (8, 0, 1, 0)$
28 : $P_{28} = (9, 0, 1, 0)$
29 : $P_{29} = (10, 0, 1, 0)$
30 : $P_{30} = (11, 0, 1, 0)$
31 : $P_{31} = (12, 0, 1, 0)$
32 : $P_{32} = (13, 0, 1, 0)$
33 : $P_{33} = (14, 0, 1, 0)$
34 : $P_{34} = (15, 0, 1, 0)$
35 : $P_{36} = (1, 1, 1, 0)$
36 : $P_{52} = (1, 2, 1, 0)$
37 : $P_{68} = (1, 3, 1, 0)$
38 : $P_{84} = (1, 4, 1, 0)$
39 : $P_{100} = (1, 5, 1, 0)$
40 : $P_{116} = (1, 6, 1, 0)$
41 : $P_{132} = (1, 7, 1, 0)$
42 : $P_{148} = (1, 8, 1, 0)$
43 : $P_{164} = (1, 9, 1, 0)$
44 : $P_{180} = (1, 10, 1, 0)$
45 : $P_{196} = (1, 11, 1, 0)$
46 : $P_{212} = (1, 12, 1, 0)$
47 : $P_{228} = (1, 13, 1, 0)$
48 : $P_{244} = (1, 14, 1, 0)$
49 : $P_{260} = (1, 15, 1, 0)$
50 : $P_{291} = (1, 1, 0, 1)$
51 : $P_{310} = (4, 2, 0, 1)$
52 : $P_{327} = (5, 3, 0, 1)$
53 : $P_{347} = (9, 4, 0, 1)$
54 : $P_{362} = (8, 5, 0, 1)$
55 : $P_{383} = (13, 6, 0, 1)$
56 : $P_{398} = (12, 7, 0, 1)$
57 : $P_{417} = (15, 8, 0, 1)$
58 : $P_{432} = (14, 9, 0, 1)$
59 : $P_{445} = (11, 10, 0, 1)$
60 : $P_{460} = (10, 11, 0, 1)$
61 : $P_{472} = (6, 12, 0, 1)$
62 : $P_{489} = (7, 13, 0, 1)$
63 : $P_{500} = (2, 14, 0, 1)$
64 : $P_{517} = (3, 15, 0, 1)$
65 : $P_{530} = (0, 0, 1, 1)$
66 : $P_{546} = (0, 1, 1, 1)$
67 : $P_{547} = (2, 1, 1, 1)$
68 : $P_{548} = (3, 1, 1, 1)$
69 : $P_{549} = (4, 1, 1, 1)$
70 : $P_{550} = (5, 1, 1, 1)$
71 : $P_{551} = (6, 1, 1, 1)$
72 : $P_{552} = (7, 1, 1, 1)$
73 : $P_{553} = (8, 1, 1, 1)$
74 : $P_{554} = (9, 1, 1, 1)$
75 : $P_{555} = (10, 1, 1, 1)$
76 : $P_{556} = (11, 1, 1, 1)$
77 : $P_{557} = (12, 1, 1, 1)$
78 : $P_{558} = (13, 1, 1, 1)$
79 : $P_{559} = (14, 1, 1, 1)$
80 : $P_{560} = (15, 1, 1, 1)$
81 : $P_{563} = (2, 2, 1, 1)$
82 : $P_{580} = (3, 3, 1, 1)$
83 : $P_{597} = (4, 4, 1, 1)$
84 : $P_{614} = (5, 5, 1, 1)$
85 : $P_{631} = (6, 6, 1, 1)$
86 : $P_{648} = (7, 7, 1, 1)$
87 : $P_{665} = (8, 8, 1, 1)$
88 : $P_{682} = (9, 9, 1, 1)$
89 : $P_{699} = (10, 10, 1, 1)$
90 : $P_{716} = (11, 11, 1, 1)$
91 : $P_{733} = (12, 12, 1, 1)$
92 : $P_{750} = (13, 13, 1, 1)$
93 : $P_{767} = (14, 14, 1, 1)$
94 : $P_{784} = (15, 15, 1, 1)$
95 : $P_{785} = (0, 0, 2, 1)$
96 : $P_{804} = (3, 1, 2, 1)$
97 : $P_{828} = (11, 2, 2, 1)$
98 : $P_{836} = (3, 3, 2, 1)$
99 : $P_{849} = (0, 4, 2, 1)$
100 : $P_{874} = (9, 5, 2, 1)$
101 : $P_{889} = (8, 6, 2, 1)$
102 : $P_{903} = (6, 7, 2, 1)$
103 : $P_{925} = (12, 8, 2, 1)$
104 : $P_{940} = (11, 9, 2, 1)$
105 : $P_{954} = (9, 10, 2, 1)$
106 : $P_{969} = (8, 11, 2, 1)$
107 : $P_{1005} = (12, 13, 2, 1)$
108 : $P_{1011} = (2, 14, 2, 1)$
109 : $P_{1031} = (6, 15, 2, 1)$
110 : $P_{1041} = (0, 0, 3, 1)$
111 : $P_{1059} = (2, 1, 3, 1)$
112 : $P_{1075} = (2, 2, 3, 1)$
113 : $P_{1103} = (14, 3, 3, 1)$
114 : $P_{1120} = (15, 4, 3, 1)$
115 : $P_{1121} = (0, 5, 3, 1)$
116 : $P_{1148} = (11, 6, 3, 1)$
117 : $P_{1164} = (11, 7, 3, 1)$
118 : $P_{1200} = (15, 9, 3, 1)$
119 : $P_{1209} = (8, 10, 3, 1)$
120 : $P_{1226} = (9, 11, 3, 1)$
121 : $P_{1242} = (9, 12, 3, 1)$
122 : $P_{1263} = (14, 13, 3, 1)$
123 : $P_{1273} = (8, 14, 3, 1)$
124 : $P_{1284} = (3, 15, 3, 1)$
125 : $P_{1297} = (0, 0, 4, 1)$
126 : $P_{1318} = (5, 1, 4, 1)$
127 : $P_{1333} = (4, 2, 4, 1)$
128 : $P_{1358} = (13, 3, 4, 1)$
129 : $P_{1371} = (10, 4, 4, 1)$
130 : $P_{1382} = (5, 5, 4, 1)$
131 : $P_{1415} = (6, 7, 4, 1)$
132 : $P_{1439} = (14, 8, 4, 1)$
133 : $P_{1441} = (0, 9, 4, 1)$
134 : $P_{1472} = (15, 10, 4, 1)$
135 : $P_{1487} = (14, 11, 4, 1)$
136 : $P_{1502} = (13, 12, 4, 1)$
137 : $P_{1520} = (15, 13, 4, 1)$
138 : $P_{1531} = (10, 14, 4, 1)$
139 : $P_{1543} = (6, 15, 4, 1)$
140 : $P_{1553} = (0, 0, 5, 1)$
141 : $P_{1573} = (4, 1, 5, 1)$
142 : $P_{1600} = (15, 2, 5, 1)$
143 : $P_{1606} = (5, 3, 5, 1)$
144 : $P_{1621} = (4, 4, 5, 1)$
145 : $P_{1635} = (2, 5, 5, 1)$
146 : $P_{1663} = (14, 6, 5, 1)$
147 : $P_{1667} = (2, 7, 5, 1)$
148 : $P_{1681} = (0, 8, 5, 1)$
149 : $P_{1700} = (3, 9, 5, 1)$
150 : $P_{1727} = (14, 10, 5, 1)$
151 : $P_{1744} = (15, 11, 5, 1)$
152 : $P_{1755} = (10, 12, 5, 1)$
153 : $P_{1771} = (10, 13, 5, 1)$
154 : $P_{1780} = (3, 14, 5, 1)$
155 : $P_{1809} = (0, 0, 6, 1)$
156 : $P_{1832} = (7, 1, 6, 1)$
157 : $P_{1854} = (13, 2, 6, 1)$
158 : $P_{1858} = (1, 3, 6, 1)$
159 : $P_{1901} = (12, 5, 6, 1)$
160 : $P_{1914} = (9, 6, 6, 1)$
161 : $P_{1928} = (7, 7, 6, 1)$
162 : $P_{1938} = (1, 8, 6, 1)$
163 : $P_{1956} = (3, 9, 6, 1)$
164 : $P_{1982} = (13, 10, 6, 1)$
165 : $P_{1997} = (12, 11, 6, 1)$
166 : $P_{2007} = (6, 12, 6, 1)$
167 : $P_{2017} = (0, 13, 6, 1)$
168 : $P_{2036} = (3, 14, 6, 1)$
169 : $P_{2058} = (9, 15, 6, 1)$
170 : $P_{2065} = (0, 0, 7, 1)$
171 : $P_{2087} = (6, 1, 7, 1)$
172 : $P_{2105} = (8, 2, 7, 1)$
173 : $P_{2114} = (1, 3, 7, 1)$
174 : $P_{2137} = (8, 4, 7, 1)$
175 : $P_{2147} = (2, 5, 7, 1)$
176 : $P_{2167} = (6, 6, 7, 1)$
177 : $P_{2179} = (2, 7, 7, 1)$
178 : $P_{2194} = (1, 8, 7, 1)$
179 : $P_{2221} = (12, 9, 7, 1)$

180 : $P_{2237} = (12, 10, 7, 1)$
181 : $P_{2254} = (13, 11, 7, 1)$
182 : $P_{2257} = (0, 12, 7, 1)$
183 : $P_{2280} = (7, 13, 7, 1)$
184 : $P_{2318} = (13, 15, 7, 1)$
185 : $P_{2321} = (0, 0, 8, 1)$
186 : $P_{2346} = (9, 1, 8, 1)$
187 : $P_{2358} = (5, 2, 8, 1)$
188 : $P_{2388} = (3, 4, 8, 1)$
189 : $P_{2409} = (8, 5, 8, 1)$
190 : $P_{2428} = (11, 6, 8, 1)$
191 : $P_{2444} = (11, 7, 8, 1)$
192 : $P_{2453} = (4, 8, 8, 1)$
193 : $P_{2474} = (9, 9, 8, 1)$
194 : $P_{2484} = (3, 10, 8, 1)$
195 : $P_{2499} = (2, 11, 8, 1)$
196 : $P_{2517} = (4, 12, 8, 1)$
197 : $P_{2531} = (2, 13, 8, 1)$
198 : $P_{2550} = (5, 14, 8, 1)$
199 : $P_{2561} = (0, 15, 8, 1)$
200 : $P_{2577} = (0, 0, 9, 1)$
201 : $P_{2601} = (8, 1, 9, 1)$
202 : $P_{2620} = (11, 2, 9, 1)$
203 : $P_{2638} = (13, 3, 9, 1)$
204 : $P_{2650} = (9, 4, 9, 1)$
205 : $P_{2664} = (7, 5, 9, 1)$
206 : $P_{2680} = (7, 6, 9, 1)$
207 : $P_{2692} = (3, 7, 9, 1)$
208 : $P_{2713} = (8, 8, 9, 1)$
209 : $P_{2732} = (11, 9, 9, 1)$
210 : $P_{2739} = (2, 10, 9, 1)$
211 : $P_{2756} = (3, 11, 9, 1)$
212 : $P_{2782} = (13, 12, 9, 1)$
213 : $P_{2801} = (0, 14, 9, 1)$
214 : $P_{2819} = (2, 15, 9, 1)$
215 : $P_{2833} = (0, 0, 10, 1)$
216 : $P_{2860} = (11, 1, 10, 1)$
217 : $P_{2880} = (15, 2, 10, 1)$
218 : $P_{2885} = (4, 3, 10, 1)$
219 : $P_{2904} = (7, 4, 10, 1)$
220 : $P_{2925} = (12, 5, 10, 1)$
221 : $P_{2937} = (8, 6, 10, 1)$
222 : $P_{2948} = (3, 7, 10, 1)$
223 : $P_{2975} = (14, 8, 10, 1)$
224 : $P_{2982} = (5, 9, 10, 1)$
225 : $P_{2994} = (1, 10, 10, 1)$
226 : $P_{3009} = (0, 11, 10, 1)$
227 : $P_{3010} = (1, 11, 10, 1)$
228 : $P_{3011} = (2, 11, 10, 1)$
229 : $P_{3012} = (3, 11, 10, 1)$
230 : $P_{3013} = (4, 11, 10, 1)$
231 : $P_{3014} = (5, 11, 10, 1)$
232 : $P_{3015} = (6, 11, 10, 1)$
233 : $P_{3016} = (7, 11, 10, 1)$
234 : $P_{3017} = (8, 11, 10, 1)$
235 : $P_{3018} = (9, 11, 10, 1)$
236 : $P_{3019} = (10, 11, 10, 1)$
237 : $P_{3020} = (11, 11, 10, 1)$
238 : $P_{3021} = (12, 11, 10, 1)$
239 : $P_{3022} = (13, 11, 10, 1)$
240 : $P_{3023} = (14, 11, 10, 1)$
241 : $P_{3024} = (15, 11, 10, 1)$
242 : $P_{3034} = (9, 12, 10, 1)$
243 : $P_{3043} = (2, 13, 10, 1)$
244 : $P_{3063} = (6, 14, 10, 1)$
245 : $P_{3086} = (13, 15, 10, 1)$
246 : $P_{3089} = (0, 0, 11, 1)$
247 : $P_{3115} = (10, 1, 11, 1)$
248 : $P_{3134} = (13, 2, 11, 1)$
249 : $P_{3144} = (7, 3, 11, 1)$
250 : $P_{3156} = (3, 4, 11, 1)$
251 : $P_{3178} = (9, 5, 11, 1)$
252 : $P_{3199} = (14, 6, 11, 1)$
253 : $P_{3205} = (4, 7, 11, 1)$
254 : $P_{3223} = (6, 8, 11, 1)$
255 : $P_{3245} = (12, 9, 11, 1)$
256 : $P_{3249} = (0, 10, 11, 1)$
257 : $P_{3250} = (1, 10, 11, 1)$
258 : $P_{3251} = (2, 10, 11, 1)$
259 : $P_{3252} = (3, 10, 11, 1)$
260 : $P_{3253} = (4, 10, 11, 1)$
261 : $P_{3254} = (5, 10, 11, 1)$
262 : $P_{3255} = (6, 10, 11, 1)$
263 : $P_{3256} = (7, 10, 11, 1)$
264 : $P_{3257} = (8, 10, 11, 1)$
265 : $P_{3258} = (9, 10, 11, 1)$
266 : $P_{3259} = (10, 10, 11, 1)$
267 : $P_{3260} = (11, 10, 11, 1)$
268 : $P_{3261} = (12, 10, 11, 1)$
269 : $P_{3262} = (13, 10, 11, 1)$
270 : $P_{3263} = (14, 10, 11, 1)$
271 : $P_{3264} = (15, 10, 11, 1)$
272 : $P_{3266} = (1, 11, 11, 1)$
273 : $P_{3286} = (5, 12, 11, 1)$
274 : $P_{3312} = (15, 13, 11, 1)$
275 : $P_{3321} = (8, 14, 11, 1)$
276 : $P_{3331} = (2, 15, 11, 1)$
277 : $P_{3345} = (0, 0, 12, 1)$
278 : $P_{3374} = (13, 1, 12, 1)$
279 : $P_{3400} = (7, 3, 12, 1)$
280 : $P_{3424} = (15, 4, 12, 1)$
281 : $P_{3426} = (1, 5, 12, 1)$
282 : $P_{3441} = (0, 6, 12, 1)$
283 : $P_{3469} = (12, 7, 12, 1)$
284 : $P_{3477} = (4, 8, 12, 1)$
285 : $P_{3504} = (15, 9, 12, 1)$
286 : $P_{3512} = (7, 10, 12, 1)$
287 : $P_{3527} = (6, 11, 12, 1)$
288 : $P_{3541} = (4, 12, 12, 1)$
289 : $P_{3566} = (13, 13, 12, 1)$
290 : $P_{3575} = (6, 14, 12, 1)$
291 : $P_{3586} = (1, 15, 12, 1)$
292 : $P_{3601} = (0, 0, 13, 1)$
293 : $P_{3629} = (12, 1, 13, 1)$
294 : $P_{3638} = (5, 2, 13, 1)$
295 : $P_{3663} = (14, 3, 13, 1)$
296 : $P_{3672} = (7, 4, 13, 1)$
297 : $P_{3682} = (1, 5, 13, 1)$
298 : $P_{3710} = (13, 6, 13, 1)$
299 : $P_{3713} = (0, 7, 13, 1)$
300 : $P_{3735} = (6, 8, 13, 1)$
301 : $P_{3767} = (6, 10, 13, 1)$
302 : $P_{3784} = (7, 11, 13, 1)$
303 : $P_{3805} = (12, 12, 13, 1)$
304 : $P_{3823} = (14, 13, 13, 1)$
305 : $P_{3830} = (5, 14, 13, 1)$
306 : $P_{3842} = (1, 15, 13, 1)$
307 : $P_{3857} = (0, 0, 14, 1)$
308 : $P_{3888} = (15, 1, 14, 1)$
309 : $P_{3889} = (0, 2, 14, 1)$
310 : $P_{3909} = (4, 3, 14, 1)$
311 : $P_{3931} = (10, 4, 14, 1)$
312 : $P_{3944} = (7, 5, 14, 1)$
313 : $P_{3960} = (7, 6, 14, 1)$
314 : $P_{3997} = (12, 8, 14, 1)$
315 : $P_{4015} = (14, 9, 14, 1)$
316 : $P_{4022} = (5, 10, 14, 1)$
317 : $P_{4037} = (4, 11, 14, 1)$
318 : $P_{4054} = (5, 12, 14, 1)$
319 : $P_{4077} = (12, 13, 14, 1)$
320 : $P_{4091} = (10, 14, 14, 1)$
321 : $P_{4112} = (15, 15, 14, 1)$
322 : $P_{4113} = (0, 0, 15, 1)$
323 : $P_{4143} = (14, 1, 15, 1)$
324 : $P_{4153} = (8, 2, 15, 1)$
325 : $P_{4161} = (0, 3, 15, 1)$
326 : $P_{4185} = (8, 4, 15, 1)$
327 : $P_{4218} = (9, 6, 15, 1)$
328 : $P_{4229} = (4, 7, 15, 1)$
329 : $P_{4256} = (15, 8, 15, 1)$
330 : $P_{4262} = (5, 9, 15, 1)$
331 : $P_{4277} = (4, 10, 15, 1)$
332 : $P_{4294} = (5, 11, 15, 1)$
333 : $P_{4315} = (10, 12, 15, 1)$
334 : $P_{4331} = (10, 13, 15, 1)$
335 : $P_{4351} = (14, 14, 15, 1)$
336 : $P_{4362} = (9, 15, 15, 1)$