Rank-65903 over GF(16)

January 15, 2021

The equation

The equation of the surface is :

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

(0, 0, 1, 1, 0, 1, 1, 0, 1, 0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0)
The point rank of the equation over GF(16) is 304161301

General information

Number of lines	16
Number of points	337
Number of singular points	2
Number of Eckardt points	0
Number of double points	38
Number of single points	186
Number of points off lines	111
Number of Hesse planes	0
Number of axes	0
Type of points on lines	17^{16}
Type of lines on points	5^2, 2^{38}, 1^{186}, 0^{111}

Singular Points

The surface has 2 singular points:

$0:\ P_{435} = \mathbf{P}(1, \delta^{10}, 0, 1) = \mathbf{P}(1, 10, 0, 1)$
$1:\ P_{451} = \mathbf{P}(1, \delta^{5}, 0, 1) = \mathbf{P}(1, 11, 0, 1)$

The 16 Lines

The lines and their Pluecker coordinates are:

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

$$\ell_1 = \left[\begin{array}{cccc} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 1 \end{array}\right]_{257} = \left[\begin{array}{cccc} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 1 \end{array}\right]_{257} = \mathbf{Pl}(0,0,1,0,1,0)_{320}$$

$$\ell_2 = \left[\begin{array}{cccc} 1 & 0 & 0 & 1 \\ 0 & 1 & 0 & 0 \end{array}\right]_{4368} = \left[\begin{array}{cccc} 1 & 0 & 0 & 1 \\ 0 & 1 & 0 & 0 \end{array}\right]_{4368} = \mathbf{Pl}(1,0,0,1,0,0)_{34}$$

$$\ell_3 = \left[\begin{array}{cccc} 1 & 1 & 0 & 0 \\ 0 & 0 & 1 & 1 \end{array}\right]_{530} = \left[\begin{array}{cccc} 1 & 1 & 0 & 0 \\ 0 & 0 & 1 & 1 \end{array}\right]_{530} = \mathbf{Pl}(0,0,1,1,1,1)_{9426}$$

$$\ell_4 = \left[\begin{array}{cccc} 1 & \delta^{14} & 0 & 0 \\ 0 & 0 & 1 & \delta^{5} \end{array}\right]_{3543} = \left[\begin{array}{cccc} 1 & 12 & 0 & 0 \\ 0 & 0 & 1 & 11 \end{array}\right]_{3543} = \mathbf{Pl}(0,0,10,11,15,1)_{66825}$$

$$\ell_5 = \left[\begin{array}{cccc} 1 & \delta^{13} & 0 & 0 \\ 0 & 0 & 1 & \delta^{10} \end{array}\right]_{1904} = \left[\begin{array}{cccc} 1 & 6 & 0 & 0 \\ 0 & 0 & 1 & 10 \end{array}\right]_{1904} = \mathbf{Pl}(0,0,11,10,3,1)_{17896}$$

$$\ell_6 = \left[\begin{array}{cccc} 1 & \delta^{11} & 0 & 0 \\ 0 & 0 & 1 & \delta^{5} \end{array}\right]_{3816} = \left[\begin{array}{cccc} 1 & 13 & 0 & 0 \\ 0 & 0 & 1 & 11 \end{array}\right]_{3816} = \mathbf{Pl}(0,0,10,11,5,1)_{26025}$$

$$\ell_7 = \left[\begin{array}{cccc} 1 & \delta^{7} & 0 & 0 \\ 0 & 0 & 1 & \delta^{10} \end{array}\right]_{2177} = \left[\begin{array}{cccc} 1 & 7 & 0 & 0 \\ 0 & 0 & 1 & 10 \end{array}\right]_{2177} = \mathbf{Pl}(0,0,11,10,8,1)_{38296}$$

$$\ell_8 = \left[\begin{array}{cccc} 1 & 0 & \delta^{2} & \delta^{8} \\ 0 & 1 & \delta^{7} & \delta^{11} \end{array}\right]_{62459} = \left[\begin{array}{cccc} 1 & 0 & 4 & 14 \\ 0 & 1 & 7 & 13 \end{array}\right]_{62459} = \mathbf{Pl}(10,11,5,15,5,1)_{27090}$$

$$\ell_9 = \left[\begin{array}{cccc} 1 & 0 & \delta^{4} & \delta \\ 0 & 1 & \delta^{14} & \delta^{7} \end{array}\right]_{11317} = \left[\begin{array}{cccc} 1 & 0 & 9 & 2 \\ 0 & 1 & 12 & 7 \end{array}\right]_{11317} = \mathbf{Pl}(11,10,8,3,8,1)_{40036}$$

$$\ell_{10} = \left[\begin{array}{cccc} 1 & 0 & \delta^{8} & \delta^{2} \\ 0 & 1 & \delta^{13} & \delta^{14} \end{array}\right]_{21492} = \left[\begin{array}{cccc} 1 & 0 & 14 & 4 \\ 0 & 1 & 6 & 12 \end{array}\right]_{21492} = \mathbf{Pl}(10,11,15,5,15,1)_{70140}$$

$$\ell_{11} = \left[\begin{array}{cccc} 1 & 0 & \delta^{6} & \delta^{6} \\ 0 & 1 & \delta^{11} & \delta^{13} \end{array}\right]_{69724} = \left[\begin{array}{cccc} 1 & 0 & 15 & 15 \\ 0 & 1 & 13 & 6 \end{array}\right]_{69724} = \mathbf{Pl}(10,11,1,1,7,1)_{34440}$$

$$\ell_{12} = \left[\begin{array}{cccc} 1 & 0 & \delta^{9} & \delta^{9} \\ 0 & 1 & \delta^{14} & \delta^{7} \end{array}\right]_{23329} = \left[\begin{array}{cccc} 1 & 0 & 5 & 5 \\ 0 & 1 & 12 & 7 \end{array}\right]_{23329} = \mathbf{Pl}(10,11,1,1,6,1)_{30375}$$

$$\ell_{13} = \left[\begin{array}{cccc} 1 & 0 & \delta^{3} & \delta^{3} \\ 0 & 1 & \delta^{13} & \delta^{14} \end{array}\right]_{37326} = \left[\begin{array}{cccc} 1 & 0 & 8 & 8 \\ 0 & 1 & 6 & 12 \end{array}\right]_{37326} = \mathbf{Pl}(11,10,1,1,13,1)_{59011}$$

$$\ell_{14} = \left[\begin{array}{cccc} 1 & 0 & \delta^{12} & \delta^{12} \\ 0 & 1 & \delta^{7} & \delta^{11} \end{array}\right]_{14138} = \left[\begin{array}{cccc} 1 & 0 & 3 & 3 \\ 0 & 1 & 7 & 13 \end{array}\right]_{14138} = \mathbf{Pl}(11,10,1,1,12,1)_{54946}$$

$$\ell_{15} = \left[\begin{array}{cccc} 1 & 0 & \delta & \delta^{4} \\ 0 & 1 & \delta^{11} & \delta^{13} \end{array}\right]_{39967} = \left[\begin{array}{cccc} 1 & 0 & 2 & 9 \\ 0 & 1 & 13 & 6 \end{array}\right]_{39967} = \mathbf{Pl}(11,10,3,8,3,1)_{18481}$$

Rank of lines: (0, 257, 4368, 530, 3543, 1904, 3816, 2177, 62459, 11317, 21492, 69724, 23329, 37326, 14138, 39967)
Rank of points on Klein quadric: (0, 320, 34, 9426, 66825, 17896, 26025, 38296, 27090, 40036, 70140, 34440, 30375, 59011, 54946, 18481)

Eckardt Points

The surface has 0 Eckardt points:

Double Points

The surface has 38 Double points:
The double points on the surface are:

$P_0 = (1,0,0,0) = \ell_0 \cap \ell_1$
$P_1 = (0,1,0,0) = \ell_0 \cap \ell_2$
$P_5 = (1,1,0,0) = \ell_0 \cap \ell_3$
$P_6 = (2,1,0,0) = \ell_0 \cap \ell_4$
$P_8 = (4,1,0,0) = \ell_0 \cap \ell_5$
$P_{13} = (9,1,0,0) = \ell_0 \cap \ell_6$
$P_{18} = (14,1,0,0) = \ell_0 \cap \ell_7$
$P_{530} = (0,0,1,1) = \ell_1 \cap \ell_3$
$P_{535} = (5,0,1,1) = \ell_1 \cap \ell_{11}$
$P_{545} = (15,0,1,1) = \ell_1 \cap \ell_{12}$
$P_{533} = (3,0,1,1) = \ell_1 \cap \ell_{13}$
$P_{538} = (8,0,1,1) = \ell_1 \cap \ell_{14}$
$P_{665} = (8,8,1,1) = \ell_3 \cap \ell_8$
$P_{784} = (15,15,1,1) = \ell_3 \cap \ell_9$
$P_{580} = (3,3,1,1) = \ell_3 \cap \ell_{10}$
$P_{614} = (5,5,1,1) = \ell_3 \cap \ell_{15}$
$P_{2833} = (0,0,10,1) = \ell_4 \cap \ell_6$
$P_{2970} = (9,8,10,1) = \ell_4 \cap \ell_9$
$P_{2941} = (12,6,10,1) = \ell_4 \cap \ell_{10}$
$P_{2851} = (2,1,10,1) = \ell_4 \cap \ell_{11}$
$P_{3006} = (13,10,10,1) = \ell_4 \cap \ell_{14}$
$P_{3089} = (0,0,11,1) = \ell_5 \cap \ell_7$
$P_{3343} = (14,15,11,1) = \ell_5 \cap \ell_{10}$
$P_{3272} = (7,11,11,1) = \ell_5 \cap \ell_{12}$
$P_{3109} = (4,1,11,1) = \ell_5 \cap \ell_{14}$
$P_{3303} = (6,13,11,1) = \ell_5 \cap \ell_{15}$
$P_{2958} = (13,7,10,1) = \ell_6 \cap \ell_8$
$P_{2858} = (9,1,10,1) = \ell_6 \cap \ell_{12}$
$P_{3005} = (12,10,10,1) = \ell_6 \cap \ell_{13}$
$P_{2883} = (2,3,10,1) = \ell_6 \cap \ell_{15}$
$P_{3173} = (4,5,11,1) = \ell_7 \cap \ell_8$
$P_{3288} = (7,12,11,1) = \ell_7 \cap \ell_9$
$P_{3271} = (6,11,11,1) = \ell_7 \cap \ell_{11}$
$P_{3119} = (14,1,11,1) = \ell_7 \cap \ell_{13}$
$P_{3745} = (0,9,13,1) = \ell_8 \cap \ell_{14}$
$P_{2289} = (0,14,7,1) = \ell_9 \cap \ell_{12}$
$P_{3377} = (0,2,12,1) = \ell_{10} \cap \ell_{13}$
$P_{1873} = (0,4,6,1) = \ell_{11} \cap \ell_{15}$

Single Points

The surface has 186 single points:
The single points on the surface are:

$0:\ P_4 = (1,1,1,1)$ lies on line ℓ_3
$1:\ P_7 = (3,1,0,0)$ lies on line ℓ_0
$2:\ P_9 = (5,1,0,0)$ lies on line ℓ_0
$3:\ P_{10} = (6,1,0,0)$ lies on line ℓ_0
$4:\ P_{11} = (7,1,0,0)$ lies on line ℓ_0
$5:\ P_{12} = (8,1,0,0)$ lies on line ℓ_0
$6:\ P_{14} = (10,1,0,0)$ lies on line ℓ_0
$7:\ P_{15} = (11,1,0,0)$ lies on line ℓ_0
$8:\ P_{16} = (12,1,0,0)$ lies on line ℓ_0
$9:\ P_{17} = (13,1,0,0)$ lies on line ℓ_0
$10:\ P_{19} = (15,1,0,0)$ lies on line ℓ_0
$11:\ P_{60} = (9,2,1,0)$ lies on line ℓ_8
$12:\ P_{97} = (14,4,1,0)$ lies on line ℓ_9
$13:\ P_{165} = (2,9,1,0)$ lies on line ℓ_{10}
$14:\ P_{183} = (4,10,1,0)$ lies on line ℓ_{11}
$15:\ P_{193} = (14,10,1,0)$ lies on line ℓ_{12}
$16:\ P_{197} = (2,11,1,0)$ lies on line ℓ_{13}
$17:\ P_{204} = (9,11,1,0)$ lies on line ℓ_{14}
$18:\ P_{247} = (4,14,1,0)$ lies on line ℓ_{15}
$19:\ P_{275} = (1,0,0,1)$ lies on line ℓ_2
$20:\ P_{291} = (1,1,0,1)$ lies on line ℓ_2
$21:\ P_{307} = (1,2,0,1)$ lies on line ℓ_2
$22:\ P_{323} = (1,3,0,1)$ lies on line ℓ_2
$23:\ P_{339} = (1,4,0,1)$ lies on line ℓ_2
$24:\ P_{355} = (1,5,0,1)$ lies on line ℓ_2
$25:\ P_{371} = (1,6,0,1)$ lies on line ℓ_2
$26:\ P_{387} = (1,7,0,1)$ lies on line ℓ_2
$27:\ P_{403} = (1,8,0,1)$ lies on line ℓ_2
$28:\ P_{419} = (1,9,0,1)$ lies on line ℓ_2
$29:\ P_{467} = (1,12,0,1)$ lies on line ℓ_2
$30:\ P_{483} = (1,13,0,1)$ lies on line ℓ_2
$31:\ P_{499} = (1,14,0,1)$ lies on line ℓ_2
$32:\ P_{515} = (1,15,0,1)$ lies on line ℓ_2
$33:\ P_{531} = (1,0,1,1)$ lies on line ℓ_1
$34:\ P_{532} = (2,0,1,1)$ lies on line ℓ_1
$35:\ P_{534} = (4,0,1,1)$ lies on line ℓ_1
$36:\ P_{536} = (6,0,1,1)$ lies on line ℓ_1
$37:\ P_{537} = (7,0,1,1)$ lies on line ℓ_1
$38:\ P_{539} = (9,0,1,1)$ lies on line ℓ_1
$39:\ P_{540} = (10,0,1,1)$ lies on line ℓ_1
$40:\ P_{541} = (11,0,1,1)$ lies on line ℓ_1
$41:\ P_{542} = (12,0,1,1)$ lies on line ℓ_1
$42:\ P_{543} = (13,0,1,1)$ lies on line ℓ_1
$43:\ P_{544} = (14,0,1,1)$ lies on line ℓ_1
$44:\ P_{563} = (2,2,1,1)$ lies on line ℓ_3
$45:\ P_{597} = (4,4,1,1)$ lies on line ℓ_3
$46:\ P_{631} = (6,6,1,1)$ lies on line ℓ_3
$47:\ P_{648} = (7,7,1,1)$ lies on line ℓ_3
$48:\ P_{682} = (9,9,1,1)$ lies on line ℓ_3
$49:\ P_{699} = (10,10,1,1)$ lies on line ℓ_3
$50:\ P_{716} = (11,11,1,1)$ lies on line ℓ_3
$51:\ P_{733} = (12,12,1,1)$ lies on line ℓ_3
$52:\ P_{750} = (13,13,1,1)$ lies on line ℓ_3
$53:\ P_{767} = (14,14,1,1)$ lies on line ℓ_3

54 : $P_{806} = (5, 1, 2, 1)$ lies on line ℓ_{10}
55 : $P_{837} = (4, 3, 2, 1)$ lies on line ℓ_{9}
56 : $P_{854} = (5, 4, 2, 1)$ lies on line ℓ_{13}
57 : $P_{859} = (10, 4, 2, 1)$ lies on line ℓ_{14}
58 : $P_{901} = (4, 7, 2, 1)$ lies on line ℓ_{12}
59 : $P_{906} = (9, 7, 2, 1)$ lies on line ℓ_{11}
60 : $P_{1018} = (9, 14, 2, 1)$ lies on line ℓ_{15}
61 : $P_{1019} = (10, 14, 2, 1)$ lies on line ℓ_{8}
62 : $P_{1054} = (13, 0, 3, 1)$ lies on line ℓ_{15}
63 : $P_{1163} = (10, 7, 3, 1)$ lies on line ℓ_{9}
64 : $P_{1176} = (7, 8, 3, 1)$ lies on line ℓ_{10}
65 : $P_{1236} = (3, 12, 3, 1)$ lies on line ℓ_{8}
66 : $P_{1259} = (10, 13, 3, 1)$ lies on line ℓ_{12}
67 : $P_{1262} = (13, 13, 3, 1)$ lies on line ℓ_{11}
68 : $P_{1284} = (3, 15, 3, 1)$ lies on line ℓ_{14}
69 : $P_{1288} = (7, 15, 3, 1)$ lies on line ℓ_{13}
70 : $P_{1321} = (8, 1, 4, 1)$ lies on line ℓ_{15}
71 : $P_{1340} = (11, 2, 4, 1)$ lies on line ℓ_{9}
72 : $P_{1343} = (14, 2, 4, 1)$ lies on line ℓ_{8}
73 : $P_{1386} = (9, 5, 4, 1)$ lies on line ℓ_{10}
74 : $P_{1449} = (8, 9, 4, 1)$ lies on line ℓ_{11}
75 : $P_{1452} = (11, 9, 4, 1)$ lies on line ℓ_{12}
76 : $P_{1498} = (9, 12, 4, 1)$ lies on line ℓ_{13}
77 : $P_{1503} = (14, 12, 4, 1)$ lies on line ℓ_{14}
78 : $P_{1560} = (7, 0, 5, 1)$ lies on line ℓ_{8}
79 : $P_{1606} = (5, 3, 5, 1)$ lies on line ℓ_{12}
80 : $P_{1613} = (12, 3, 5, 1)$ lies on line ℓ_{11}
81 : $P_{1654} = (5, 6, 5, 1)$ lies on line ℓ_{9}
82 : $P_{1672} = (7, 7, 5, 1)$ lies on line ℓ_{14}
83 : $P_{1676} = (11, 7, 5, 1)$ lies on line ℓ_{13}
84 : $P_{1756} = (11, 12, 5, 1)$ lies on line ℓ_{10}
85 : $P_{1805} = (12, 15, 5, 1)$ lies on line ℓ_{15}
86 : $P_{1862} = (5, 3, 6, 1)$ lies on line ℓ_{14}
87 : $P_{1870} = (13, 3, 6, 1)$ lies on line ℓ_{13}
88 : $P_{1887} = (14, 4, 6, 1)$ lies on line ℓ_{12}
89 : $P_{1910} = (5, 6, 6, 1)$ lies on line ℓ_{8}
90 : $P_{1983} = (14, 10, 6, 1)$ lies on line ℓ_{9}
91 : $P_{2046} = (13, 14, 6, 1)$ lies on line ℓ_{10}
92 : $P_{2141} = (12, 4, 7, 1)$ lies on line ℓ_{8}
93 : $P_{2192} = (15, 7, 7, 1)$ lies on line ℓ_{10}
94 : $P_{2205} = (12, 8, 7, 1)$ lies on line ℓ_{14}
95 : $P_{2208} = (15, 8, 7, 1)$ lies on line ℓ_{13}
96 : $P_{2229} = (4, 10, 7, 1)$ lies on line ℓ_{15}
97 : $P_{2293} = (4, 14, 7, 1)$ lies on line ℓ_{11}
98 : $P_{2333} = (12, 0, 8, 1)$ lies on line ℓ_{9}
99 : $P_{2375} = (6, 3, 8, 1)$ lies on line ℓ_{8}
100 : $P_{2407} = (6, 5, 8, 1)$ lies on line ℓ_{14}
101 : $P_{2409} = (8, 5, 8, 1)$ lies on line ℓ_{13}
102 : $P_{2427} = (10, 6, 8, 1)$ lies on line ℓ_{15}
103 : $P_{2523} = (10, 12, 8, 1)$ lies on line ℓ_{11}
104 : $P_{2525} = (12, 12, 8, 1)$ lies on line ℓ_{12}
105 : $P_{2537} = (8, 13, 8, 1)$ lies on line ℓ_{10}
106 : $P_{2608} = (15, 1, 9, 1)$ lies on line ℓ_{8}
107 : $P_{2643} = (2, 4, 9, 1)$ lies on line ℓ_{9}
108 : $P_{2651} = (10, 4, 9, 1)$ lies on line ℓ_{10}
109 : $P_{2675} = (2, 6, 9, 1)$ lies on line ℓ_{12}
110 : $P_{2687} = (14, 6, 9, 1)$ lies on line ℓ_{11}
111 : $P_{2719} = (14, 8, 9, 1)$ lies on line ℓ_{15}
112 : $P_{2811} = (10, 14, 9, 1)$ lies on line ℓ_{13}
113 : $P_{2816} = (15, 14, 9, 1)$ lies on line ℓ_{14}
114 : $P_{2869} = (4, 2, 10, 1)$ lies on line ℓ_{4}
115 : $P_{2876} = (11, 2, 10, 1)$ lies on line ℓ_{6}
116 : $P_{2887} = (6, 3, 10, 1)$ lies on line ℓ_{4}
117 : $P_{2905} = (8, 4, 10, 1)$ lies on line ℓ_{4}
118 : $P_{2912} = (15, 4, 10, 1)$ lies on line ℓ_{6}
119 : $P_{2919} = (6, 5, 10, 1)$ lies on line ℓ_{6}
120 : $P_{2923} = (10, 5, 10, 1)$ lies on line ℓ_{4}
121 : $P_{2933} = (4, 6, 10, 1)$ lies on line ℓ_{6}
122 : $P_{2959} = (14, 7, 10, 1)$ lies on line ℓ_{4}
123 : $P_{2968} = (7, 8, 10, 1)$ lies on line ℓ_{6}
124 : $P_{2988} = (11, 9, 10, 1)$ lies on line ℓ_{4}
125 : $P_{2991} = (14, 9, 10, 1)$ lies on line ℓ_{6}
126 : $P_{3014} = (5, 11, 10, 1)$ lies on line ℓ_{6}
127 : $P_{3024} = (15, 11, 10, 1)$ lies on line ℓ_{4}
128 : $P_{3026} = (1, 12, 10, 1)$ lies on line ℓ_{4}
129 : $P_{3033} = (8, 12, 10, 1)$ lies on line ℓ_{6}
130 : $P_{3042} = (1, 13, 10, 1)$ lies on line ℓ_{6}
131 : $P_{3044} = (3, 13, 10, 1)$ lies on line ℓ_{4}
132 : $P_{3060} = (3, 14, 10, 1)$ lies on line ℓ_{6}
133 : $P_{3062} = (5, 14, 10, 1)$ lies on line ℓ_{4}
134 : $P_{3080} = (7, 15, 10, 1)$ lies on line ℓ_{4}
135 : $P_{3083} = (10, 15, 10, 1)$ lies on line ℓ_{6}
136 : $P_{3126} = (5, 2, 11, 1)$ lies on line ℓ_{7}
137 : $P_{3129} = (8, 2, 11, 1)$ lies on line ℓ_{5}
138 : $P_{3148} = (11, 3, 11, 1)$ lies on line ℓ_{7}
139 : $P_{3149} = (12, 3, 11, 1)$ lies on line ℓ_{5}
140 : $P_{3162} = (9, 4, 11, 1)$ lies on line ℓ_{5}
141 : $P_{3163} = (10, 4, 11, 1)$ lies on line ℓ_{7}
142 : $P_{3182} = (13, 5, 11, 1)$ lies on line ℓ_{5}
143 : $P_{3186} = (1, 6, 11, 1)$ lies on line ℓ_{5}
144 : $P_{3200} = (15, 6, 11, 1)$ lies on line ℓ_{7}
145 : $P_{3202} = (1, 7, 11, 1)$ lies on line ℓ_{7}
146 : $P_{3206} = (5, 7, 11, 1)$ lies on line ℓ_{5}
147 : $P_{3228} = (11, 8, 11, 1)$ lies on line ℓ_{5}
148 : $P_{3230} = (13, 8, 11, 1)$ lies on line ℓ_{7}
149 : $P_{3236} = (3, 9, 11, 1)$ lies on line ℓ_{7}
150 : $P_{3248} = (15, 9, 11, 1)$ lies on line ℓ_{5}
151 : $P_{3252} = (3, 10, 11, 1)$ lies on line ℓ_{5}
152 : $P_{3257} = (8, 10, 11, 1)$ lies on line ℓ_{7}
153 : $P_{3283} = (2, 12, 11, 1)$ lies on line ℓ_{5}
154 : $P_{3306} = (9, 13, 11, 1)$ lies on line ℓ_{7}
155 : $P_{3315} = (2, 14, 11, 1)$ lies on line ℓ_{7}
156 : $P_{3323} = (10, 14, 11, 1)$ lies on line ℓ_{5}
157 : $P_{3341} = (12, 15, 11, 1)$ lies on line ℓ_{7}
158 : $P_{3386} = (9, 2, 12, 1)$ lies on line ℓ_{14}
159 : $P_{3495} = (6, 9, 12, 1)$ lies on line ℓ_{9}
160 : $P_{3530} = (9, 11, 12, 1)$ lies on line ℓ_{8}
161 : $P_{3540} = (3, 12, 12, 1)$ lies on line ℓ_{15}

162 : $P_{3588} = (3, 15, 12, 1)$ lies on line ℓ_{11}
163 : $P_{3591} = (6, 15, 12, 1)$ lies on line ℓ_{12}
164 : $P_{3640} = (7, 2, 13, 1)$ lies on line ℓ_{15}
165 : $P_{3688} = (7, 5, 13, 1)$ lies on line ℓ_{11}
166 : $P_{3689} = (8, 5, 13, 1)$ lies on line ℓ_{12}
167 : $P_{3747} = (2, 9, 13, 1)$ lies on line ℓ_{13}
168 : $P_{3779} = (2, 11, 13, 1)$ lies on line ℓ_{10}
169 : $P_{3817} = (8, 13, 13, 1)$ lies on line ℓ_{9}
170 : $P_{3876} = (3, 1, 14, 1)$ lies on line ℓ_{9}
171 : $P_{3892} = (3, 2, 14, 1)$ lies on line ℓ_{12}
172 : $P_{3900} = (11, 2, 14, 1)$ lies on line ℓ_{11}
173 : $P_{4005} = (4, 9, 14, 1)$ lies on line ℓ_{10}
174 : $P_{4012} = (11, 9, 14, 1)$ lies on line ℓ_{15}
175 : $P_{4067} = (2, 13, 14, 1)$ lies on line ℓ_{14}
176 : $P_{4069} = (4, 13, 14, 1)$ lies on line ℓ_{13}
177 : $P_{4099} = (2, 15, 14, 1)$ lies on line ℓ_{8}
178 : $P_{4119} = (6, 0, 15, 1)$ lies on line ℓ_{10}
179 : $P_{4206} = (13, 5, 15, 1)$ lies on line ℓ_{9}
180 : $P_{4215} = (6, 6, 15, 1)$ lies on line ℓ_{13}
181 : $P_{4220} = (11, 6, 15, 1)$ lies on line ℓ_{14}
182 : $P_{4240} = (15, 7, 15, 1)$ lies on line ℓ_{15}
183 : $P_{4254} = (13, 8, 15, 1)$ lies on line ℓ_{12}
184 : $P_{4256} = (15, 8, 15, 1)$ lies on line ℓ_{11}
185 : $P_{4332} = (11, 13, 15, 1)$ lies on line ℓ_{8}

The single points on the surface are:

Points on surface but on no line

The surface has 111 points not on any line:
The points on the surface but not on lines are:

0 : $P_{20} = (1, 0, 1, 0)$
1 : $P_{35} = (0, 1, 1, 0)$
2 : $P_{36} = (1, 1, 1, 0)$
3 : $P_{62} = (11, 2, 1, 0)$
4 : $P_{93} = (10, 4, 1, 0)$
5 : $P_{174} = (11, 9, 1, 0)$
6 : $P_{253} = (10, 14, 1, 0)$
7 : $P_{798} = (13, 0, 2, 1)$
8 : $P_{813} = (12, 1, 2, 1)$
9 : $P_{839} = (6, 3, 2, 1)$
10 : $P_{865} = (0, 5, 2, 1)$
11 : $P_{871} = (6, 5, 2, 1)$
12 : $P_{1005} = (12, 13, 2, 1)$
13 : $P_{1006} = (13, 13, 2, 1)$
14 : $P_{1094} = (5, 3, 3, 1)$
15 : $P_{1100} = (11, 3, 3, 1)$
16 : $P_{1123} = (2, 5, 3, 1)$
17 : $P_{1130} = (9, 5, 3, 1)$
18 : $P_{1137} = (0, 6, 3, 1)$
19 : $P_{1142} = (5, 6, 3, 1)$
20 : $P_{1155} = (2, 7, 3, 1)$
21 : $P_{1180} = (11, 8, 3, 1)$
22 : $P_{1242} = (9, 12, 3, 1)$
23 : $P_{1304} = (7, 0, 4, 1)$
24 : $P_{1319} = (6, 1, 4, 1)$
25 : $P_{1390} = (13, 5, 4, 1)$
26 : $P_{1415} = (6, 7, 4, 1)$
27 : $P_{1416} = (7, 7, 4, 1)$
28 : $P_{1425} = (0, 8, 4, 1)$
29 : $P_{1438} = (13, 8, 4, 1)$
30 : $P_{1641} = (8, 5, 5, 1)$
31 : $P_{1643} = (10, 5, 5, 1)$
32 : $P_{1663} = (14, 6, 5, 1)$
33 : $P_{1685} = (4, 8, 5, 1)$
34 : $P_{1695} = (14, 8, 5, 1)$
35 : $P_{1749} = (4, 12, 5, 1)$
36 : $P_{1761} = (0, 13, 5, 1)$
37 : $P_{1769} = (8, 13, 5, 1)$
38 : $P_{1803} = (10, 15, 5, 1)$
39 : $P_{1820} = (11, 0, 6, 1)$
40 : $P_{1917} = (12, 6, 6, 1)$
41 : $P_{1981} = (12, 10, 6, 1)$
42 : $P_{1991} = (6, 11, 6, 1)$
43 : $P_{1996} = (11, 11, 6, 1)$
44 : $P_{2019} = (2, 13, 6, 1)$
45 : $P_{2023} = (6, 13, 6, 1)$
46 : $P_{2034} = (1, 14, 6, 1)$
47 : $P_{2050} = (1, 15, 6, 1)$
48 : $P_{2051} = (2, 15, 6, 1)$
49 : $P_{2076} = (11, 0, 7, 1)$
50 : $P_{2130} = (1, 4, 7, 1)$
51 : $P_{2146} = (1, 5, 7, 1)$
52 : $P_{2154} = (9, 5, 7, 1)$
53 : $P_{2190} = (13, 7, 7, 1)$
54 : $P_{2238} = (13, 10, 7, 1)$
55 : $P_{2248} = (7, 11, 7, 1)$
56 : $P_{2252} = (11, 11, 7, 1)$
57 : $P_{2264} = (7, 12, 7, 1)$
58 : $P_{2266} = (9, 12, 7, 1)$
59 : $P_{2380} = (11, 3, 8, 1)$
60 : $P_{2426} = (9, 6, 8, 1)$
61 : $P_{2433} = (0, 7, 8, 1)$

62 : $P_{2448} = (15, 7, 8, 1)$
63 : $P_{2460} = (11, 8, 8, 1)$
64 : $P_{2464} = (15, 8, 8, 1)$
65 : $P_{2531} = (2, 13, 8, 1)$
66 : $P_{2563} = (2, 15, 8, 1)$
67 : $P_{2570} = (9, 15, 8, 1)$
68 : $P_{2589} = (12, 0, 9, 1)$
69 : $P_{2606} = (13, 1, 9, 1)$
70 : $P_{2712} = (7, 8, 9, 1)$
71 : $P_{2781} = (12, 12, 9, 1)$
72 : $P_{2782} = (13, 12, 9, 1)$
73 : $P_{2817} = (0, 15, 9, 1)$
74 : $P_{2824} = (7, 15, 9, 1)$
75 : $P_{3355} = (10, 0, 12, 1)$
76 : $P_{3453} = (12, 6, 12, 1)$
77 : $P_{3455} = (14, 6, 12, 1)$
78 : $P_{3474} = (1, 8, 12, 1)$
79 : $P_{3487} = (14, 8, 12, 1)$
80 : $P_{3490} = (1, 9, 12, 1)$
81 : $P_{3515} = (10, 10, 12, 1)$
82 : $P_{3517} = (12, 10, 12, 1)$
83 : $P_{3528} = (7, 11, 12, 1)$
84 : $P_{3544} = (7, 12, 12, 1)$
85 : $P_{3611} = (10, 0, 13, 1)$
86 : $P_{3634} = (1, 2, 13, 1)$
87 : $P_{3650} = (1, 3, 13, 1)$
88 : $P_{3653} = (4, 3, 13, 1)$
89 : $P_{3717} = (4, 7, 13, 1)$
90 : $P_{3726} = (13, 7, 13, 1)$
91 : $P_{3771} = (10, 10, 13, 1)$
92 : $P_{3774} = (13, 10, 13, 1)$
93 : $P_{3783} = (6, 11, 13, 1)$
94 : $P_{3815} = (6, 13, 13, 1)$
95 : $P_{3863} = (6, 0, 14, 1)$
96 : $P_{3880} = (7, 1, 14, 1)$
97 : $P_{3905} = (0, 3, 14, 1)$
98 : $P_{3917} = (12, 3, 14, 1)$
99 : $P_{3959} = (6, 6, 14, 1)$
100 : $P_{3960} = (7, 6, 14, 1)$
101 : $P_{4109} = (12, 15, 14, 1)$
102 : $P_{4165} = (4, 3, 15, 1)$
103 : $P_{4175} = (14, 3, 15, 1)$
104 : $P_{4203} = (10, 5, 15, 1)$
105 : $P_{4229} = (4, 7, 15, 1)$
106 : $P_{4305} = (0, 12, 15, 1)$
107 : $P_{4308} = (3, 12, 15, 1)$
108 : $P_{4335} = (14, 13, 15, 1)$
109 : $P_{4356} = (3, 15, 15, 1)$
110 : $P_{4363} = (10, 15, 15, 1)$

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

Neighbor sets in the line intersection graph:
Line 0 intersects

Line	ℓ_1	ℓ_2	ℓ_3	ℓ_4	ℓ_5	ℓ_6	ℓ_7
in point	P_0	P_1	P_5	P_6	P_8	P_{13}	P_{18}

Line 1 intersects

Line	ℓ_0	ℓ_3	ℓ_{11}	ℓ_{12}	ℓ_{13}	ℓ_{14}
in point	P_0	P_{530}	P_{535}	P_{545}	P_{533}	P_{538}

Line 2 intersects

Line	ℓ_0	ℓ_8	ℓ_9	ℓ_{10}	ℓ_{11}	ℓ_{12}	ℓ_{13}	ℓ_{14}	ℓ_{15}
in point	P_1	P_{435}	P_{451}	P_{435}	P_{435}	P_{435}	P_{451}	P_{451}	P_{451}

Line 3 intersects

Line	ℓ_0	ℓ_1	ℓ_8	ℓ_9	ℓ_{10}	ℓ_{15}
in point	P_5	P_{530}	P_{665}	P_{784}	P_{580}	P_{614}

Line 4 intersects

Line	ℓ_0	ℓ_6	ℓ_9	ℓ_{10}	ℓ_{11}	ℓ_{14}
in point	P_6	P_{2833}	P_{2970}	P_{2941}	P_{2851}	P_{3006}

Line 5 intersects

Line	ℓ_0	ℓ_7	ℓ_{10}	ℓ_{12}	ℓ_{14}	ℓ_{15}
in point	P_8	P_{3089}	P_{3343}	P_{3272}	P_{3109}	P_{3303}

Line 6 intersects

Line	ℓ_0	ℓ_4	ℓ_8	ℓ_{12}	ℓ_{13}	ℓ_{15}
in point	P_{13}	P_{2833}	P_{2958}	P_{2858}	P_{3005}	P_{2883}

Line 7 intersects

Line	ℓ_0	ℓ_5	ℓ_8	ℓ_9	ℓ_{11}	ℓ_{13}
in point	P_{18}	P_{3089}	P_{3173}	P_{3288}	P_{3271}	P_{3119}

Line 8 intersects

Line	ℓ_2	ℓ_3	ℓ_6	ℓ_7	ℓ_{10}	ℓ_{11}	ℓ_{12}	ℓ_{14}
in point	P_{435}	P_{665}	P_{2958}	P_{3173}	P_{435}	P_{435}	P_{435}	P_{3745}

Line 9 intersects

Line	ℓ_2	ℓ_3	ℓ_4	ℓ_7	ℓ_{12}	ℓ_{13}	ℓ_{14}	ℓ_{15}
in point	P_{451}	P_{784}	P_{2970}	P_{3288}	P_{2289}	P_{451}	P_{451}	P_{451}

Line 10 intersects

Line	ℓ_2	ℓ_3	ℓ_4	ℓ_5	ℓ_8	ℓ_{11}	ℓ_{12}	ℓ_{13}
in point	P_{435}	P_{580}	P_{2941}	P_{3343}	P_{435}	P_{435}	P_{435}	P_{3377}

Line 11 intersects

Line	ℓ_1	ℓ_2	ℓ_4	ℓ_7	ℓ_8	ℓ_{10}	ℓ_{12}	ℓ_{15}
in point	P_{535}	P_{435}	P_{2851}	P_{3271}	P_{435}	P_{435}	P_{435}	P_{1873}

Line 12 intersects

Line	ℓ_1	ℓ_2	ℓ_5	ℓ_6	ℓ_8	ℓ_9	ℓ_{10}	ℓ_{11}
in point	P_{545}	P_{435}	P_{3272}	P_{2858}	P_{435}	P_{2289}	P_{435}	P_{435}

Line 13 intersects

Line	ℓ_1	ℓ_2	ℓ_6	ℓ_7	ℓ_9	ℓ_{10}	ℓ_{14}	ℓ_{15}
in point	P_{533}	P_{451}	P_{3005}	P_{3119}	P_{451}	P_{3377}	P_{451}	P_{451}

Line 14 intersects

Line	ℓ_1	ℓ_2	ℓ_4	ℓ_5	ℓ_8	ℓ_9	ℓ_{13}	ℓ_{15}
in point	P_{538}	P_{451}	P_{3006}	P_{3109}	P_{3745}	P_{451}	P_{451}	P_{451}

Line 15 intersects

Line	ℓ_2	ℓ_3	ℓ_5	ℓ_6	ℓ_9	ℓ_{11}	ℓ_{13}	ℓ_{14}
in point	P_{451}	P_{614}	P_{3303}	P_{2883}	P_{451}	P_{1873}	P_{451}	P_{451}

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

$0: P_0 = (1,0,0,0)$
$1: P_1 = (0,1,0,0)$
$2: P_4 = (1,1,1,1)$
$3: P_5 = (1,1,0,0)$
$4: P_6 = (2,1,0,0)$
$5: P_7 = (3,1,0,0)$
$6: P_8 = (4,1,0,0)$
$7: P_9 = (5,1,0,0)$
$8: P_{10} = (6,1,0,0)$
$9: P_{11} = (7,1,0,0)$
$10: P_{12} = (8,1,0,0)$
$11: P_{13} = (9,1,0,0)$
$12: P_{14} = (10,1,0,0)$
$13: P_{15} = (11,1,0,0)$
$14: P_{16} = (12,1,0,0)$
$15: P_{17} = (13,1,0,0)$
$16: P_{18} = (14,1,0,0)$
$17: P_{19} = (15,1,0,0)$
$18: P_{20} = (1,0,1,0)$
$19: P_{35} = (0,1,1,0)$
$20: P_{36} = (1,1,1,0)$
$21: P_{60} = (9,2,1,0)$
$22: P_{62} = (11,2,1,0)$
$23: P_{93} = (10,4,1,0)$
$24: P_{97} = (14,4,1,0)$
$25: P_{165} = (2,9,1,0)$
$26: P_{174} = (11,9,1,0)$
$27: P_{183} = (4,10,1,0)$
$28: P_{193} = (14,10,1,0)$
$29: P_{197} = (2,11,1,0)$
$30: P_{204} = (9,11,1,0)$
$31: P_{247} = (4,14,1,0)$
$32: P_{253} = (10,14,1,0)$
$33: P_{275} = (1,0,0,1)$
$34: P_{291} = (1,1,0,1)$
$35: P_{307} = (1,2,0,1)$
$36: P_{323} = (1,3,0,1)$
$37: P_{339} = (1,4,0,1)$
$38: P_{355} = (1,5,0,1)$
$39: P_{371} = (1,6,0,1)$
$40: P_{387} = (1,7,0,1)$
$41: P_{403} = (1,8,0,1)$
$42: P_{419} = (1,9,0,1)$
$43: P_{435} = (1,10,0,1)$
$44: P_{451} = (1,11,0,1)$
$45: P_{467} = (1,12,0,1)$
$46: P_{483} = (1,13,0,1)$
$47: P_{499} = (1,14,0,1)$
$48: P_{515} = (1,15,0,1)$
$49: P_{530} = (0,0,1,1)$
$50: P_{531} = (1,0,1,1)$
$51: P_{532} = (2,0,1,1)$
$52: P_{533} = (3,0,1,1)$
$53: P_{534} = (4,0,1,1)$
$54: P_{535} = (5,0,1,1)$
$55: P_{536} = (6,0,1,1)$
$56: P_{537} = (7,0,1,1)$
$57: P_{538} = (8,0,1,1)$
$58: P_{539} = (9,0,1,1)$
$59: P_{540} = (10,0,1,1)$
$60: P_{541} = (11,0,1,1)$
$61: P_{542} = (12,0,1,1)$
$62: P_{543} = (13,0,1,1)$
$63: P_{544} = (14,0,1,1)$
$64: P_{545} = (15,0,1,1)$
$65: P_{563} = (2,2,1,1)$
$66: P_{580} = (3,3,1,1)$
$67: P_{597} = (4,4,1,1)$
$68: P_{614} = (5,5,1,1)$
$69: P_{631} = (6,6,1,1)$
$70: P_{648} = (7,7,1,1)$
$71: P_{665} = (8,8,1,1)$
$72: P_{682} = (9,9,1,1)$
$73: P_{699} = (10,10,1,1)$
$74: P_{716} = (11,11,1,1)$
$75: P_{733} = (12,12,1,1)$
$76: P_{750} = (13,13,1,1)$
$77: P_{767} = (14,14,1,1)$
$78: P_{784} = (15,15,1,1)$
$79: P_{798} = (13,0,2,1)$
$80: P_{806} = (5,1,2,1)$
$81: P_{813} = (12,1,2,1)$
$82: P_{837} = (4,3,2,1)$
$83: P_{839} = (6,3,2,1)$
$84: P_{854} = (5,4,2,1)$
$85: P_{859} = (10,4,2,1)$
$86: P_{865} = (0,5,2,1)$
$87: P_{871} = (6,5,2,1)$
$88: P_{901} = (4,7,2,1)$
$89: P_{906} = (9,7,2,1)$
$90: P_{1005} = (12,13,2,1)$
$91: P_{1006} = (13,13,2,1)$
$92: P_{1018} = (9,14,2,1)$
$93: P_{1019} = (10,14,2,1)$
$94: P_{1054} = (13,0,3,1)$
$95: P_{1094} = (5,3,3,1)$
$96: P_{1100} = (11,3,3,1)$
$97: P_{1123} = (2,5,3,1)$
$98: P_{1130} = (9,5,3,1)$
$99: P_{1137} = (0,6,3,1)$
$100: P_{1142} = (5,6,3,1)$
$101: P_{1155} = (2,7,3,1)$
$102: P_{1163} = (10,7,3,1)$
$103: P_{1176} = (7,8,3,1)$
$104: P_{1180} = (11,8,3,1)$
$105: P_{1236} = (3,12,3,1)$
$106: P_{1242} = (9,12,3,1)$
$107: P_{1259} = (10,13,3,1)$
$108: P_{1262} = (13,13,3,1)$
$109: P_{1284} = (3,15,3,1)$
$110: P_{1288} = (7,15,3,1)$
$111: P_{1304} = (7,0,4,1)$
$112: P_{1319} = (6,1,4,1)$
$113: P_{1321} = (8,1,4,1)$
$114: P_{1340} = (11,2,4,1)$
$115: P_{1343} = (14,2,4,1)$
$116: P_{1386} = (9,5,4,1)$
$117: P_{1390} = (13,5,4,1)$
$118: P_{1415} = (6,7,4,1)$
$119: P_{1416} = (7,7,4,1)$
$120: P_{1425} = (0,8,4,1)$
$121: P_{1438} = (13,8,4,1)$
$122: P_{1449} = (8,9,4,1)$
$123: P_{1452} = (11,9,4,1)$
$124: P_{1498} = (9,12,4,1)$
$125: P_{1503} = (14,12,4,1)$
$126: P_{1560} = (7,0,5,1)$
$127: P_{1606} = (5,3,5,1)$
$128: P_{1613} = (12,3,5,1)$
$129: P_{1641} = (8,5,5,1)$
$130: P_{1643} = (10,5,5,1)$
$131: P_{1654} = (5,6,5,1)$
$132: P_{1663} = (14,6,5,1)$
$133: P_{1672} = (7,7,5,1)$
$134: P_{1676} = (11,7,5,1)$
$135: P_{1685} = (4,8,5,1)$
$136: P_{1695} = (14,8,5,1)$
$137: P_{1749} = (4,12,5,1)$
$138: P_{1756} = (11,12,5,1)$
$139: P_{1761} = (0,13,5,1)$
$140: P_{1769} = (8,13,5,1)$
$141: P_{1803} = (10,15,5,1)$
$142: P_{1805} = (12,15,5,1)$
$143: P_{1820} = (11,0,6,1)$
$144: P_{1862} = (5,3,6,1)$
$145: P_{1870} = (13,3,6,1)$
$146: P_{1873} = (0,4,6,1)$
$147: P_{1887} = (14,4,6,1)$
$148: P_{1910} = (5,6,6,1)$
$149: P_{1917} = (12,6,6,1)$
$150: P_{1981} = (12,10,6,1)$
$151: P_{1983} = (14,10,6,1)$
$152: P_{1991} = (6,11,6,1)$
$153: P_{1996} = (11,11,6,1)$
$154: P_{2019} = (2,13,6,1)$
$155: P_{2023} = (6,13,6,1)$
$156: P_{2034} = (1,14,6,1)$
$157: P_{2046} = (13,14,6,1)$
$158: P_{2050} = (1,15,6,1)$
$159: P_{2051} = (2,15,6,1)$
$160: P_{2076} = (11,0,7,1)$
$161: P_{2130} = (1,4,7,1)$

$162: P_{2141} = (12, 4, 7, 1)$
$163: P_{2146} = (1, 5, 7, 1)$
$164: P_{2154} = (9, 5, 7, 1)$
$165: P_{2190} = (13, 7, 7, 1)$
$166: P_{2192} = (15, 7, 7, 1)$
$167: P_{2205} = (12, 8, 7, 1)$
$168: P_{2208} = (15, 8, 7, 1)$
$169: P_{2229} = (4, 10, 7, 1)$
$170: P_{2238} = (13, 10, 7, 1)$
$171: P_{2248} = (7, 11, 7, 1)$
$172: P_{2252} = (11, 11, 7, 1)$
$173: P_{2264} = (7, 12, 7, 1)$
$174: P_{2266} = (9, 12, 7, 1)$
$175: P_{2289} = (0, 14, 7, 1)$
$176: P_{2293} = (4, 14, 7, 1)$
$177: P_{2333} = (12, 0, 8, 1)$
$178: P_{2375} = (6, 3, 8, 1)$
$179: P_{2380} = (11, 3, 8, 1)$
$180: P_{2407} = (6, 5, 8, 1)$
$181: P_{2409} = (8, 5, 8, 1)$
$182: P_{2426} = (9, 6, 8, 1)$
$183: P_{2427} = (10, 6, 8, 1)$
$184: P_{2433} = (0, 7, 8, 1)$
$185: P_{2448} = (15, 7, 8, 1)$
$186: P_{2460} = (11, 8, 8, 1)$
$187: P_{2464} = (15, 8, 8, 1)$
$188: P_{2523} = (10, 12, 8, 1)$
$189: P_{2525} = (12, 12, 8, 1)$
$190: P_{2531} = (2, 13, 8, 1)$
$191: P_{2537} = (8, 13, 8, 1)$
$192: P_{2563} = (2, 15, 8, 1)$
$193: P_{2570} = (9, 15, 8, 1)$
$194: P_{2589} = (12, 0, 9, 1)$
$195: P_{2606} = (13, 1, 9, 1)$
$196: P_{2608} = (15, 1, 9, 1)$
$197: P_{2643} = (2, 4, 9, 1)$
$198: P_{2651} = (10, 4, 9, 1)$
$199: P_{2675} = (2, 6, 9, 1)$
$200: P_{2687} = (14, 6, 9, 1)$
$201: P_{2712} = (7, 8, 9, 1)$
$202: P_{2719} = (14, 8, 9, 1)$
$203: P_{2781} = (12, 12, 9, 1)$
$204: P_{2782} = (13, 12, 9, 1)$
$205: P_{2811} = (10, 14, 9, 1)$
$206: P_{2816} = (15, 14, 9, 1)$
$207: P_{2817} = (0, 15, 9, 1)$
$208: P_{2824} = (7, 15, 9, 1)$
$209: P_{2833} = (0, 0, 10, 1)$
$210: P_{2851} = (2, 1, 10, 1)$
$211: P_{2858} = (9, 1, 10, 1)$
$212: P_{2869} = (4, 2, 10, 1)$
$213: P_{2876} = (11, 2, 10, 1)$
$214: P_{2883} = (2, 3, 10, 1)$
$215: P_{2887} = (6, 3, 10, 1)$
$216: P_{2905} = (8, 4, 10, 1)$
$217: P_{2912} = (15, 4, 10, 1)$
$218: P_{2919} = (6, 5, 10, 1)$
$219: P_{2923} = (10, 5, 10, 1)$
$220: P_{2933} = (4, 6, 10, 1)$
$221: P_{2941} = (12, 6, 10, 1)$
$222: P_{2958} = (13, 7, 10, 1)$
$223: P_{2959} = (14, 7, 10, 1)$
$224: P_{2968} = (7, 8, 10, 1)$
$225: P_{2970} = (9, 8, 10, 1)$
$226: P_{2988} = (11, 9, 10, 1)$
$227: P_{2991} = (14, 9, 10, 1)$
$228: P_{3005} = (12, 10, 10, 1)$
$229: P_{3006} = (13, 10, 10, 1)$
$230: P_{3014} = (5, 11, 10, 1)$
$231: P_{3024} = (15, 11, 10, 1)$
$232: P_{3026} = (1, 12, 10, 1)$
$233: P_{3033} = (8, 12, 10, 1)$
$234: P_{3042} = (1, 13, 10, 1)$
$235: P_{3044} = (3, 13, 10, 1)$
$236: P_{3060} = (3, 14, 10, 1)$
$237: P_{3062} = (5, 14, 10, 1)$
$238: P_{3080} = (7, 15, 10, 1)$
$239: P_{3083} = (10, 15, 10, 1)$
$240: P_{3089} = (0, 0, 11, 1)$
$241: P_{3109} = (4, 1, 11, 1)$
$242: P_{3119} = (14, 1, 11, 1)$
$243: P_{3126} = (5, 2, 11, 1)$
$244: P_{3129} = (8, 2, 11, 1)$
$245: P_{3148} = (11, 3, 11, 1)$
$246: P_{3149} = (12, 3, 11, 1)$
$247: P_{3162} = (9, 4, 11, 1)$
$248: P_{3163} = (10, 4, 11, 1)$
$249: P_{3173} = (4, 5, 11, 1)$
$250: P_{3182} = (13, 5, 11, 1)$
$251: P_{3186} = (1, 6, 11, 1)$
$252: P_{3200} = (15, 6, 11, 1)$
$253: P_{3202} = (1, 7, 11, 1)$
$254: P_{3206} = (5, 7, 11, 1)$
$255: P_{3228} = (11, 8, 11, 1)$
$256: P_{3230} = (13, 8, 11, 1)$
$257: P_{3236} = (3, 9, 11, 1)$
$258: P_{3248} = (15, 9, 11, 1)$
$259: P_{3252} = (3, 10, 11, 1)$
$260: P_{3257} = (8, 10, 11, 1)$
$261: P_{3271} = (6, 11, 11, 1)$
$262: P_{3272} = (7, 11, 11, 1)$
$263: P_{3283} = (2, 12, 11, 1)$
$264: P_{3288} = (7, 12, 11, 1)$
$265: P_{3303} = (6, 13, 11, 1)$
$266: P_{3306} = (9, 13, 11, 1)$
$267: P_{3315} = (2, 14, 11, 1)$
$268: P_{3323} = (10, 14, 11, 1)$
$269: P_{3341} = (12, 15, 11, 1)$
$270: P_{3343} = (14, 15, 11, 1)$
$271: P_{3355} = (10, 0, 12, 1)$
$272: P_{3377} = (0, 2, 12, 1)$
$273: P_{3386} = (9, 2, 12, 1)$
$274: P_{3453} = (12, 6, 12, 1)$
$275: P_{3455} = (14, 6, 12, 1)$
$276: P_{3474} = (1, 8, 12, 1)$
$277: P_{3487} = (14, 8, 12, 1)$
$278: P_{3490} = (1, 9, 12, 1)$
$279: P_{3495} = (6, 9, 12, 1)$
$280: P_{3515} = (10, 10, 12, 1)$
$281: P_{3517} = (12, 10, 12, 1)$
$282: P_{3528} = (7, 11, 12, 1)$
$283: P_{3530} = (9, 11, 12, 1)$
$284: P_{3540} = (3, 12, 12, 1)$
$285: P_{3544} = (7, 12, 12, 1)$
$286: P_{3588} = (3, 15, 12, 1)$
$287: P_{3591} = (6, 15, 12, 1)$
$288: P_{3611} = (10, 0, 13, 1)$
$289: P_{3634} = (1, 2, 13, 1)$
$290: P_{3640} = (7, 2, 13, 1)$
$291: P_{3650} = (1, 3, 13, 1)$
$292: P_{3653} = (4, 3, 13, 1)$
$293: P_{3688} = (7, 5, 13, 1)$
$294: P_{3689} = (8, 5, 13, 1)$
$295: P_{3717} = (4, 7, 13, 1)$
$296: P_{3726} = (13, 7, 13, 1)$
$297: P_{3745} = (0, 9, 13, 1)$
$298: P_{3747} = (2, 9, 13, 1)$
$299: P_{3771} = (10, 10, 13, 1)$
$300: P_{3774} = (13, 10, 13, 1)$
$301: P_{3779} = (2, 11, 13, 1)$
$302: P_{3783} = (6, 11, 13, 1)$
$303: P_{3815} = (6, 13, 13, 1)$
$304: P_{3817} = (8, 13, 13, 1)$
$305: P_{3863} = (6, 0, 14, 1)$
$306: P_{3876} = (3, 1, 14, 1)$
$307: P_{3880} = (7, 1, 14, 1)$
$308: P_{3892} = (3, 2, 14, 1)$
$309: P_{3900} = (11, 2, 14, 1)$
$310: P_{3905} = (0, 3, 14, 1)$
$311: P_{3917} = (12, 3, 14, 1)$
$312: P_{3959} = (6, 6, 14, 1)$
$313: P_{3960} = (7, 6, 14, 1)$
$314: P_{4005} = (4, 9, 14, 1)$
$315: P_{4012} = (11, 9, 14, 1)$
$316: P_{4067} = (2, 13, 14, 1)$
$317: P_{4069} = (4, 13, 14, 1)$
$318: P_{4099} = (2, 15, 14, 1)$
$319: P_{4109} = (12, 15, 14, 1)$
$320: P_{4119} = (6, 0, 15, 1)$
$321: P_{4165} = (4, 3, 15, 1)$
$322: P_{4175} = (14, 3, 15, 1)$
$323: P_{4203} = (10, 5, 15, 1)$

$324: P_{4206} = (13, 5, 15, 1)$
$325: P_{4215} = (6, 6, 15, 1)$
$326: P_{4220} = (11, 6, 15, 1)$
$327: P_{4229} = (4, 7, 15, 1)$
$328: P_{4240} = (15, 7, 15, 1)$
$329: P_{4254} = (13, 8, 15, 1)$
$330: P_{4256} = (15, 8, 15, 1)$
$331: P_{4305} = (0, 12, 15, 1)$
$332: P_{4308} = (3, 12, 15, 1)$
$333: P_{4332} = (11, 13, 15, 1)$
$334: P_{4335} = (14, 13, 15, 1)$
$335: P_{4356} = (3, 15, 15, 1)$
$336: P_{4363} = (10, 15, 15, 1)$