Rank-65550 over GF(16)

January 15, 2021

The equation

The equation of the surface is :

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

(1, 1, 0, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0)
The point rank of the equation over GF(16) is 286335270

General information

Number of lines	15
Number of points	337
Number of singular points	1
Number of Eckardt points	3
Number of double points	27
Number of single points	186
Number of points off lines	120
Number of Hesse planes	0
Number of axes	0
Type of points on lines	17^{15}
Type of lines on points	6, 3^3, 2^{27}, 1^{186}, 0^{120}

Singular Points

The surface has 1 singular points:

$0: \ P_2 = \mathbf{P}(0,0,1,0) = \mathbf{P}(0,0,1,0)$

The 15 Lines

The lines and their Pluecker coordinates are:

$$\ell_0 = \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{4624} = \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{4624} = \mathbf{Pl}(0,1,1,0,0,0)_{18}$$

$$\ell_1 = \begin{bmatrix} 1 & 0 & 0 & \delta^5 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{48304} = \begin{bmatrix} 1 & 0 & 0 & 11 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{48304} = \mathbf{Pl}(0,11,1,0,0,0)_{28}$$

$$\ell_2 = \begin{bmatrix} 1 & 0 & 0 & \delta^{10} \\ 0 & 0 & 1 & 0 \end{bmatrix}_{43936} = \begin{bmatrix} 1 & 0 & 0 & 10 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{43936} = \mathbf{Pl}(0,10,1,0,0,0)_{27}$$

$$\ell_3 = \begin{bmatrix} 0 & 1 & 0 & 1 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{69905} = \begin{bmatrix} 0 & 1 & 0 & 1 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{69905} = \mathbf{Pl}(0,1,0,0,0,1)_{4641}$$

$$\ell_4 = \begin{bmatrix} 0 & 1 & 0 & \delta^{5} \\ 0 & 0 & 1 & 0 \end{bmatrix}_{70075} = \begin{bmatrix} 0 & 1 & 0 & 11 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{70075} = \mathbf{Pl}(0,11,0,0,0,1)_{4651}$$

$$\ell_5 = \begin{bmatrix} 0 & 1 & 0 & \delta^{10} \\ 0 & 0 & 1 & 0 \end{bmatrix}_{70058} = \begin{bmatrix} 0 & 1 & 0 & 10 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{70058} = \mathbf{Pl}(0,10,0,0,0,1)_{4650}$$

$$\ell_6 = \begin{bmatrix} 1 & 0 & 1 & 1 \\ 0 & 1 & 1 & 1 \end{bmatrix}_{4658} = \begin{bmatrix} 1 & 0 & 1 & 1 \\ 0 & 1 & 1 & 1 \end{bmatrix}_{4658} = \mathbf{Pl}(1,0,1,1,1,1)_{9427}$$

$$\ell_7 = \begin{bmatrix} 1 & 0 & 1 & \delta^{5} \\ 0 & 1 & 1 & \delta^{5} \end{bmatrix}_{48498} = \begin{bmatrix} 1 & 0 & 1 & 11 \\ 0 & 1 & 1 & 11 \end{bmatrix}_{48498} = \mathbf{Pl}(10,0,10,11,11,1)_{50515}$$

$$\ell_8 = \begin{bmatrix} 1 & 0 & 1 & \delta^{10} \\ 0 & 1 & 1 & \delta^{10} \end{bmatrix}_{44114} = \begin{bmatrix} 1 & 0 & 1 & 10 \\ 0 & 1 & 1 & 10 \end{bmatrix}_{44114} = \mathbf{Pl}(11,0,11,10,10,1)_{46467}$$

$$\ell_9 = \begin{bmatrix} 1 & 0 & \delta^{10} & \delta^{10} \\ 0 & 1 & \delta^{5} & \delta^{5} \end{bmatrix}_{46597} = \begin{bmatrix} 1 & 0 & 10 & 10 \\ 0 & 1 & 11 & 11 \end{bmatrix}_{46597} = \mathbf{Pl}(10,0,1,1,10,1)_{46156}$$

$$\ell_{10} = \begin{bmatrix} 1 & 0 & \delta^{10} & 1 \\ 0 & 1 & \delta^{5} & \delta^{10} \end{bmatrix}_{7269} = \begin{bmatrix} 1 & 0 & 10 & 1 \\ 0 & 1 & 11 & 10 \end{bmatrix}_{7269} = \mathbf{Pl}(11,0,10,11,1,1)_{9716}$$

$$\ell_{11} = \begin{bmatrix} 1 & 0 & \delta^{10} & \delta^{5} \\ 0 & 1 & \delta^{5} & 1 \end{bmatrix}_{50805} = \begin{bmatrix} 1 & 0 & 10 & 11 \\ 0 & 1 & 11 & 1 \end{bmatrix}_{50805} = \mathbf{Pl}(1,0,11,10,11,1)_{50537}$$

$$\ell_{12} = \begin{bmatrix} 1 & 0 & \delta^{5} & \delta^{5} \\ 0 & 1 & \delta^{10} & \delta^{10} \end{bmatrix}_{51221} = \begin{bmatrix} 1 & 0 & 11 & 11 \\ 0 & 1 & 10 & 10 \end{bmatrix}_{51221} = \mathbf{Pl}(11,0,1,1,11,1)_{50237}$$

$$\ell_{13} = \begin{bmatrix} 1 & 0 & \delta^{5} & \delta^{10} \\ 0 & 1 & \delta^{10} & 1 \end{bmatrix}_{46709} = \begin{bmatrix} 1 & 0 & 11 & 10 \\ 0 & 1 & 10 & 1 \end{bmatrix}_{46709} = \mathbf{Pl}(1,0,10,11,10,1)_{46426}$$

$$\ell_{14} = \begin{bmatrix} 1 & 0 & \delta^{5} & 1 \\ 0 & 1 & \delta^{10} & \delta^{5} \end{bmatrix}_{7557} = \begin{bmatrix} 1 & 0 & 11 & 1 \\ 0 & 1 & 10 & 11 \end{bmatrix}_{7557} = \mathbf{Pl}(10,0,11,10,1,1)_{9746}$$

Rank of lines: (4624, 48304, 43936, 69905, 70075, 70058, 4658, 48498, 44114, 46597, 7269, 50805, 51221, 46709, 7557)
Rank of points on Klein quadric: (18, 28, 27, 4641, 4651, 4650, 9427, 50515, 46467, 46156, 9716, 50537, 50237, 46426, 9746)

Eckardt Points

The surface has 3 Eckardt points:
$0 : P_5 = \mathbf{P}(1,1,0,0) = \mathbf{P}(1,1,0,0)$,
$1 : P_{14} = \mathbf{P}(\delta^{10},1,0,0) = \mathbf{P}(10,1,0,0)$,
$2 : P_{15} = \mathbf{P}(\delta^{5},1,0,0) = \mathbf{P}(11,1,0,0)$.

Double Points

The surface has 27 Double points:
The double points on the surface are:

$P_{531} = (1,0,1,1) = \ell_0 \cap \ell_6$
$P_{2834} = (1,0,10,1) = \ell_0 \cap \ell_{10}$
$P_{3090} = (1,0,11,1) = \ell_0 \cap \ell_{14}$
$P_{2843} = (10,0,10,1) = \ell_1 \cap \ell_7$
$P_{3099} = (10,0,11,1) = \ell_1 \cap \ell_{11}$
$P_{540} = (10,0,1,1) = \ell_1 \cap \ell_{12}$
$P_{3100} = (11,0,11,1) = \ell_2 \cap \ell_8$
$P_{541} = (11,0,1,1) = \ell_2 \cap \ell_9$
$P_{2844} = (11,0,10,1) = \ell_2 \cap \ell_{13}$
$P_{546} = (0,1,1,1) = \ell_3 \cap \ell_6$
$P_{3105} = (0,1,11,1) = \ell_3 \cap \ell_{11}$
$P_{2849} = (0,1,10,1) = \ell_3 \cap \ell_{13}$
$P_{2993} = (0,10,10,1) = \ell_4 \cap \ell_7$
$P_{689} = (0,10,1,1) = \ell_4 \cap \ell_9$
$P_{3249} = (0,10,11,1) = \ell_4 \cap \ell_{14}$
$P_{3265} = (0,11,11,1) = \ell_5 \cap \ell_8$
$P_{3009} = (0,11,10,1) = \ell_5 \cap \ell_{10}$
$P_{705} = (0,11,1,1) = \ell_5 \cap \ell_{12}$
$P_{715} = (10,11,1,1) = \ell_6 \cap \ell_9$
$P_{700} = (11,10,1,1) = \ell_6 \cap \ell_{12}$
$P_{2860} = (11,1,10,1) = \ell_7 \cap \ell_{10}$
$P_{3010} = (1,11,10,1) = \ell_7 \cap \ell_{13}$
$P_{3250} = (1,10,11,1) = \ell_8 \cap \ell_{11}$
$P_{3115} = (10,1,11,1) = \ell_8 \cap \ell_{14}$
$P_4 = (1,1,1,1) = \ell_9 \cap \ell_{12}$
$P_{3003} = (10,10,10,1) = \ell_{10} \cap \ell_{13}$
$P_{3276} = (11,11,11,1) = \ell_{11} \cap \ell_{14}$

Single Points

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

0 : $P_{275} = (1,0,0,1)$ lies on line ℓ_0
1 : $P_{284} = (10,0,0,1)$ lies on line ℓ_1
2 : $P_{285} = (11,0,0,1)$ lies on line ℓ_2
3 : $P_{290} = (0,1,0,1)$ lies on line ℓ_3
4 : $P_{434} = (0,10,0,1)$ lies on line ℓ_4
5 : $P_{450} = (0,11,0,1)$ lies on line ℓ_5
6 : $P_{564} = (3,2,1,1)$ lies on line ℓ_6
7 : $P_{566} = (5,2,1,1)$ lies on line ℓ_{12}
8 : $P_{567} = (6,2,1,1)$ lies on line ℓ_9
9 : $P_{579} = (2,3,1,1)$ lies on line ℓ_6
10 : $P_{589} = (12,3,1,1)$ lies on line ℓ_9
11 : $P_{591} = (14,3,1,1)$ lies on line ℓ_{12}
12 : $P_{598} = (5,4,1,1)$ lies on line ℓ_6
13 : $P_{601} = (8,4,1,1)$ lies on line ℓ_9
14 : $P_{606} = (13,4,1,1)$ lies on line ℓ_{12}
15 : $P_{611} = (2,5,1,1)$ lies on line ℓ_9
16 : $P_{613} = (4,5,1,1)$ lies on line ℓ_6
17 : $P_{615} = (6,5,1,1)$ lies on line ℓ_{12}
18 : $P_{627} = (2,6,1,1)$ lies on line ℓ_{12}
19 : $P_{630} = (5,6,1,1)$ lies on line ℓ_9
20 : $P_{632} = (7,6,1,1)$ lies on line ℓ_6
21 : $P_{647} = (6,7,1,1)$ lies on line ℓ_6
22 : $P_{650} = (9,7,1,1)$ lies on line ℓ_{12}
23 : $P_{656} = (15,7,1,1)$ lies on line ℓ_9
24 : $P_{661} = (4,8,1,1)$ lies on line ℓ_{12}
25 : $P_{666} = (9,8,1,1)$ lies on line ℓ_6
26 : $P_{670} = (13,8,1,1)$ lies on line ℓ_9
27 : $P_{680} = (7,9,1,1)$ lies on line ℓ_9
28 : $P_{681} = (8,9,1,1)$ lies on line ℓ_6
29 : $P_{688} = (15,9,1,1)$ lies on line ℓ_{12}
30 : $P_{724} = (3,12,1,1)$ lies on line ℓ_{12}
31 : $P_{734} = (13,12,1,1)$ lies on line ℓ_6
32 : $P_{735} = (14,12,1,1)$ lies on line ℓ_9
33 : $P_{741} = (4,13,1,1)$ lies on line ℓ_9
34 : $P_{745} = (8,13,1,1)$ lies on line ℓ_{12}
35 : $P_{749} = (12,13,1,1)$ lies on line ℓ_6
36 : $P_{756} = (3,14,1,1)$ lies on line ℓ_9
37 : $P_{765} = (12,14,1,1)$ lies on line ℓ_{12}
38 : $P_{768} = (15,14,1,1)$ lies on line ℓ_6
39 : $P_{776} = (7,15,1,1)$ lies on line ℓ_{12}
40 : $P_{778} = (9,15,1,1)$ lies on line ℓ_9
41 : $P_{783} = (14,15,1,1)$ lies on line ℓ_6
42 : $P_{786} = (1,0,2,1)$ lies on line ℓ_0
43 : $P_{795} = (10,0,2,1)$ lies on line ℓ_1
44 : $P_{796} = (11,0,2,1)$ lies on line ℓ_2
45 : $P_{801} = (0,1,2,1)$ lies on line ℓ_3
46 : $P_{945} = (0,10,2,1)$ lies on line ℓ_4
47 : $P_{961} = (0,11,2,1)$ lies on line ℓ_5
48 : $P_{1042} = (1,0,3,1)$ lies on line ℓ_0
49 : $P_{1051} = (10,0,3,1)$ lies on line ℓ_1
50 : $P_{1052} = (11,0,3,1)$ lies on line ℓ_2
51 : $P_{1057} = (0,1,3,1)$ lies on line ℓ_3
52 : $P_{1201} = (0,10,3,1)$ lies on line ℓ_4
53 : $P_{1217} = (0,11,3,1)$ lies on line ℓ_5
54 : $P_{1298} = (1,0,4,1)$ lies on line ℓ_0
55 : $P_{1307} = (10,0,4,1)$ lies on line ℓ_1
56 : $P_{1308} = (11,0,4,1)$ lies on line ℓ_2
57 : $P_{1313} = (0,1,4,1)$ lies on line ℓ_3
58 : $P_{1457} = (0,10,4,1)$ lies on line ℓ_4
59 : $P_{1473} = (0,11,4,1)$ lies on line ℓ_5
60 : $P_{1554} = (1,0,5,1)$ lies on line ℓ_0
61 : $P_{1563} = (10,0,5,1)$ lies on line ℓ_1
62 : $P_{1564} = (11,0,5,1)$ lies on line ℓ_2
63 : $P_{1569} = (0,1,5,1)$ lies on line ℓ_3
64 : $P_{1713} = (0,10,5,1)$ lies on line ℓ_4
65 : $P_{1729} = (0,11,5,1)$ lies on line ℓ_5

66 : $P_{1810} = (1, 0, 6, 1)$ lies on line ℓ_0
67 : $P_{1819} = (10, 0, 6, 1)$ lies on line ℓ_1
68 : $P_{1820} = (11, 0, 6, 1)$ lies on line ℓ_2
69 : $P_{1825} = (0, 1, 6, 1)$ lies on line ℓ_3
70 : $P_{1969} = (0, 10, 6, 1)$ lies on line ℓ_4
71 : $P_{1985} = (0, 11, 6, 1)$ lies on line ℓ_5
72 : $P_{2066} = (1, 0, 7, 1)$ lies on line ℓ_0
73 : $P_{2075} = (10, 0, 7, 1)$ lies on line ℓ_1
74 : $P_{2076} = (11, 0, 7, 1)$ lies on line ℓ_2
75 : $P_{2081} = (0, 1, 7, 1)$ lies on line ℓ_3
76 : $P_{2225} = (0, 10, 7, 1)$ lies on line ℓ_4
77 : $P_{2241} = (0, 11, 7, 1)$ lies on line ℓ_5
78 : $P_{2322} = (1, 0, 8, 1)$ lies on line ℓ_0
79 : $P_{2331} = (10, 0, 8, 1)$ lies on line ℓ_1
80 : $P_{2332} = (11, 0, 8, 1)$ lies on line ℓ_2
81 : $P_{2337} = (0, 1, 8, 1)$ lies on line ℓ_3
82 : $P_{2481} = (0, 10, 8, 1)$ lies on line ℓ_4
83 : $P_{2497} = (0, 11, 8, 1)$ lies on line ℓ_5
84 : $P_{2578} = (1, 0, 9, 1)$ lies on line ℓ_0
85 : $P_{2587} = (10, 0, 9, 1)$ lies on line ℓ_1
86 : $P_{2588} = (11, 0, 9, 1)$ lies on line ℓ_2
87 : $P_{2593} = (0, 1, 9, 1)$ lies on line ℓ_3
88 : $P_{2737} = (0, 10, 9, 1)$ lies on line ℓ_4
89 : $P_{2753} = (0, 11, 9, 1)$ lies on line ℓ_5
90 : $P_{2869} = (4, 2, 10, 1)$ lies on line ℓ_{13}
91 : $P_{2873} = (8, 2, 10, 1)$ lies on line ℓ_7
92 : $P_{2877} = (12, 2, 10, 1)$ lies on line ℓ_{10}
93 : $P_{2887} = (6, 3, 10, 1)$ lies on line ℓ_{10}
94 : $P_{2890} = (9, 3, 10, 1)$ lies on line ℓ_7
95 : $P_{2896} = (15, 3, 10, 1)$ lies on line ℓ_{13}
96 : $P_{2899} = (2, 4, 10, 1)$ lies on line ℓ_{10}
97 : $P_{2909} = (12, 4, 10, 1)$ lies on line ℓ_{13}
98 : $P_{2911} = (14, 4, 10, 1)$ lies on line ℓ_7
99 : $P_{2920} = (7, 5, 10, 1)$ lies on line ℓ_{13}
100 : $P_{2921} = (8, 5, 10, 1)$ lies on line ℓ_{10}
101 : $P_{2928} = (15, 5, 10, 1)$ lies on line ℓ_7
102 : $P_{2932} = (3, 6, 10, 1)$ lies on line ℓ_{13}
103 : $P_{2941} = (12, 6, 10, 1)$ lies on line ℓ_7
104 : $P_{2944} = (15, 6, 10, 1)$ lies on line ℓ_{10}
105 : $P_{2950} = (5, 7, 10, 1)$ lies on line ℓ_{10}
106 : $P_{2953} = (8, 7, 10, 1)$ lies on line ℓ_{13}
107 : $P_{2958} = (13, 7, 10, 1)$ lies on line ℓ_7
108 : $P_{2963} = (2, 8, 10, 1)$ lies on line ℓ_7
109 : $P_{2966} = (5, 8, 10, 1)$ lies on line ℓ_{13}
110 : $P_{2968} = (7, 8, 10, 1)$ lies on line ℓ_{10}
111 : $P_{2980} = (3, 9, 10, 1)$ lies on line ℓ_7
112 : $P_{2990} = (13, 9, 10, 1)$ lies on line ℓ_{10}
113 : $P_{2991} = (14, 9, 10, 1)$ lies on line ℓ_{13}
114 : $P_{3027} = (2, 12, 10, 1)$ lies on line ℓ_{13}
115 : $P_{3029} = (4, 12, 10, 1)$ lies on line ℓ_{10}
116 : $P_{3031} = (6, 12, 10, 1)$ lies on line ℓ_7
117 : $P_{3048} = (7, 13, 10, 1)$ lies on line ℓ_7
118 : $P_{3050} = (9, 13, 10, 1)$ lies on line ℓ_{13}
119 : $P_{3055} = (14, 13, 10, 1)$ lies on line ℓ_{10}
120 : $P_{3061} = (4, 14, 10, 1)$ lies on line ℓ_7
121 : $P_{3066} = (9, 14, 10, 1)$ lies on line ℓ_{10}
122 : $P_{3070} = (13, 14, 10, 1)$ lies on line ℓ_{13}
123 : $P_{3076} = (3, 15, 10, 1)$ lies on line ℓ_{10}
124 : $P_{3078} = (5, 15, 10, 1)$ lies on line ℓ_7
125 : $P_{3079} = (6, 15, 10, 1)$ lies on line ℓ_{13}
126 : $P_{3128} = (7, 2, 11, 1)$ lies on line ℓ_{11}
127 : $P_{3130} = (9, 2, 11, 1)$ lies on line ℓ_8
128 : $P_{3135} = (14, 2, 11, 1)$ lies on line ℓ_{14}
129 : $P_{3142} = (5, 3, 11, 1)$ lies on line ℓ_{14}
130 : $P_{3145} = (8, 3, 11, 1)$ lies on line ℓ_8
131 : $P_{3150} = (13, 3, 11, 1)$ lies on line ℓ_{11}
132 : $P_{3159} = (6, 4, 11, 1)$ lies on line ℓ_{14}
133 : $P_{3162} = (9, 4, 11, 1)$ lies on line ℓ_{11}
134 : $P_{3168} = (15, 4, 11, 1)$ lies on line ℓ_8
135 : $P_{3172} = (3, 5, 11, 1)$ lies on line ℓ_{11}
136 : $P_{3182} = (13, 5, 11, 1)$ lies on line ℓ_{14}
137 : $P_{3183} = (14, 5, 11, 1)$ lies on line ℓ_8
138 : $P_{3189} = (4, 6, 11, 1)$ lies on line ℓ_{11}
139 : $P_{3194} = (9, 6, 11, 1)$ lies on line ℓ_{14}
140 : $P_{3198} = (13, 6, 11, 1)$ lies on line ℓ_8
141 : $P_{3203} = (2, 7, 11, 1)$ lies on line ℓ_{14}
142 : $P_{3213} = (12, 7, 11, 1)$ lies on line ℓ_8
143 : $P_{3215} = (14, 7, 11, 1)$ lies on line ℓ_{11}
144 : $P_{3220} = (3, 8, 11, 1)$ lies on line ℓ_8
145 : $P_{3229} = (12, 8, 11, 1)$ lies on line ℓ_{11}
146 : $P_{3232} = (15, 8, 11, 1)$ lies on line ℓ_{14}
147 : $P_{3235} = (2, 9, 11, 1)$ lies on line ℓ_8
148 : $P_{3237} = (4, 9, 11, 1)$ lies on line ℓ_{14}
149 : $P_{3239} = (6, 9, 11, 1)$ lies on line ℓ_{11}
150 : $P_{3288} = (7, 12, 11, 1)$ lies on line ℓ_8
151 : $P_{3289} = (8, 12, 11, 1)$ lies on line ℓ_{14}
152 : $P_{3296} = (15, 12, 11, 1)$ lies on line ℓ_{11}
153 : $P_{3300} = (3, 13, 11, 1)$ lies on line ℓ_{14}
154 : $P_{3302} = (5, 13, 11, 1)$ lies on line ℓ_{11}
155 : $P_{3303} = (6, 13, 11, 1)$ lies on line ℓ_8
156 : $P_{3315} = (2, 14, 11, 1)$ lies on line ℓ_{11}
157 : $P_{3318} = (5, 14, 11, 1)$ lies on line ℓ_8
158 : $P_{3320} = (7, 14, 11, 1)$ lies on line ℓ_{14}
159 : $P_{3333} = (4, 15, 11, 1)$ lies on line ℓ_8
160 : $P_{3337} = (8, 15, 11, 1)$ lies on line ℓ_{11}
161 : $P_{3341} = (12, 15, 11, 1)$ lies on line ℓ_{14}
162 : $P_{3346} = (1, 0, 12, 1)$ lies on line ℓ_0
163 : $P_{3355} = (10, 0, 12, 1)$ lies on line ℓ_1
164 : $P_{3356} = (11, 0, 12, 1)$ lies on line ℓ_2
165 : $P_{3361} = (0, 1, 12, 1)$ lies on line ℓ_3
166 : $P_{3505} = (0, 10, 12, 1)$ lies on line ℓ_4
167 : $P_{3521} = (0, 11, 12, 1)$ lies on line ℓ_5
168 : $P_{3602} = (1, 0, 13, 1)$ lies on line ℓ_0
169 : $P_{3611} = (10, 0, 13, 1)$ lies on line ℓ_1
170 : $P_{3612} = (11, 0, 13, 1)$ lies on line ℓ_2
171 : $P_{3617} = (0, 1, 13, 1)$ lies on line ℓ_3
172 : $P_{3761} = (0, 10, 13, 1)$ lies on line ℓ_4
173 : $P_{3777} = (0, 11, 13, 1)$ lies on line ℓ_5

174 : $P_{3858} = (1, 0, 14, 1)$ lies on line ℓ_0
175 : $P_{3867} = (10, 0, 14, 1)$ lies on line ℓ_1
176 : $P_{3868} = (11, 0, 14, 1)$ lies on line ℓ_2
177 : $P_{3873} = (0, 1, 14, 1)$ lies on line ℓ_3
178 : $P_{4017} = (0, 10, 14, 1)$ lies on line ℓ_4
179 : $P_{4033} = (0, 11, 14, 1)$ lies on line ℓ_5
180 : $P_{4114} = (1, 0, 15, 1)$ lies on line ℓ_0
181 : $P_{4123} = (10, 0, 15, 1)$ lies on line ℓ_1
182 : $P_{4124} = (11, 0, 15, 1)$ lies on line ℓ_2
183 : $P_{4129} = (0, 1, 15, 1)$ lies on line ℓ_3
184 : $P_{4273} = (0, 10, 15, 1)$ lies on line ℓ_4
185 : $P_{4289} = (0, 11, 15, 1)$ lies on line ℓ_5

The single points on the surface are:

Points on surface but on no line

The surface has 120 points not on any line:
The points on the surface but not on lines are:

0 : $P_{60} = (9, 2, 1, 0)$
1 : $P_{73} = (6, 3, 1, 0)$
2 : $P_{97} = (14, 4, 1, 0)$
3 : $P_{112} = (13, 5, 1, 0)$
4 : $P_{118} = (3, 6, 1, 0)$
5 : $P_{139} = (8, 7, 1, 0)$
6 : $P_{154} = (7, 8, 1, 0)$
7 : $P_{165} = (2, 9, 1, 0)$
8 : $P_{226} = (15, 12, 1, 0)$
9 : $P_{232} = (5, 13, 1, 0)$
10 : $P_{247} = (4, 14, 1, 0)$
11 : $P_{271} = (12, 15, 1, 0)$
12 : $P_{815} = (14, 1, 2, 1)$
13 : $P_{837} = (4, 3, 2, 1)$
14 : $P_{852} = (3, 4, 2, 1)$
15 : $P_{891} = (10, 6, 2, 1)$
16 : $P_{904} = (7, 7, 2, 1)$
17 : $P_{924} = (11, 8, 2, 1)$
18 : $P_{951} = (6, 10, 2, 1)$
19 : $P_{969} = (8, 11, 2, 1)$
20 : $P_{1010} = (1, 14, 2, 1)$
21 : $P_{1072} = (15, 1, 3, 1)$
22 : $P_{1084} = (11, 2, 3, 1)$
23 : $P_{1126} = (5, 5, 3, 1)$
24 : $P_{1197} = (12, 9, 3, 1)$
25 : $P_{1214} = (13, 10, 3, 1)$
26 : $P_{1219} = (2, 11, 3, 1)$
27 : $P_{1242} = (9, 12, 3, 1)$
28 : $P_{1259} = (10, 13, 3, 1)$
29 : $P_{1282} = (1, 15, 3, 1)$
30 : $P_{1315} = (2, 1, 4, 1)$
31 : $P_{1330} = (1, 2, 4, 1)$
32 : $P_{1386} = (9, 5, 4, 1)$
33 : $P_{1446} = (5, 9, 4, 1)$
34 : $P_{1472} = (15, 10, 4, 1)$
35 : $P_{1486} = (13, 11, 4, 1)$
36 : $P_{1501} = (12, 12, 4, 1)$
37 : $P_{1516} = (11, 13, 4, 1)$
38 : $P_{1547} = (10, 15, 4, 1)$
39 : $P_{1572} = (3, 1, 5, 1)$
40 : $P_{1602} = (1, 3, 5, 1)$
41 : $P_{1627} = (10, 4, 5, 1)$
42 : $P_{1663} = (14, 6, 5, 1)$
43 : $P_{1676} = (11, 7, 5, 1)$
44 : $P_{1689} = (8, 8, 5, 1)$
45 : $P_{1717} = (4, 10, 5, 1)$
46 : $P_{1736} = (7, 11, 5, 1)$
47 : $P_{1783} = (6, 14, 5, 1)$
48 : $P_{1837} = (12, 1, 6, 1)$
49 : $P_{1843} = (2, 2, 6, 1)$
50 : $P_{1900} = (11, 5, 6, 1)$
51 : $P_{1963} = (10, 9, 6, 1)$
52 : $P_{1978} = (9, 10, 6, 1)$
53 : $P_{1990} = (5, 11, 6, 1)$
54 : $P_{2002} = (1, 12, 6, 1)$
55 : $P_{2032} = (15, 13, 6, 1)$
56 : $P_{2062} = (13, 15, 6, 1)$
57 : $P_{2094} = (13, 1, 7, 1)$
58 : $P_{2107} = (10, 2, 7, 1)$
59 : $P_{2157} = (12, 5, 7, 1)$
60 : $P_{2218} = (9, 9, 7, 1)$
61 : $P_{2227} = (2, 10, 7, 1)$
62 : $P_{2256} = (15, 11, 7, 1)$
63 : $P_{2262} = (5, 12, 7, 1)$
64 : $P_{2274} = (1, 13, 7, 1)$
65 : $P_{2316} = (11, 15, 7, 1)$
66 : $P_{2342} = (5, 1, 8, 1)$
67 : $P_{2366} = (13, 2, 8, 1)$
68 : $P_{2402} = (1, 5, 8, 1)$
69 : $P_{2476} = (11, 9, 8, 1)$
70 : $P_{2493} = (12, 10, 8, 1)$
71 : $P_{2506} = (9, 11, 8, 1)$
72 : $P_{2523} = (10, 12, 8, 1)$
73 : $P_{2531} = (2, 13, 8, 1)$

74 : $P_{2576} = (15, 15, 8, 1)$
75 : $P_{2597} = (4, 1, 9, 1)$
76 : $P_{2636} = (11, 3, 9, 1)$
77 : $P_{2642} = (1, 4, 9, 1)$
78 : $P_{2679} = (6, 6, 9, 1)$
79 : $P_{2699} = (10, 7, 9, 1)$
80 : $P_{2719} = (14, 8, 9, 1)$
81 : $P_{2744} = (7, 10, 9, 1)$
82 : $P_{2756} = (3, 11, 9, 1)$
83 : $P_{2809} = (8, 14, 9, 1)$
84 : $P_{3368} = (7, 1, 12, 1)$
85 : $P_{3403} = (10, 3, 12, 1)$
86 : $P_{3420} = (11, 4, 12, 1)$
87 : $P_{3449} = (8, 6, 12, 1)$
88 : $P_{3458} = (1, 7, 12, 1)$
89 : $P_{3479} = (6, 8, 12, 1)$
90 : $P_{3508} = (3, 10, 12, 1)$
91 : $P_{3525} = (4, 11, 12, 1)$
92 : $P_{3583} = (14, 14, 12, 1)$
93 : $P_{3623} = (6, 1, 13, 1)$
94 : $P_{3656} = (7, 3, 13, 1)$
95 : $P_{3669} = (4, 4, 13, 1)$
96 : $P_{3698} = (1, 6, 13, 1)$
97 : $P_{3716} = (3, 7, 13, 1)$
98 : $P_{3739} = (10, 8, 13, 1)$
99 : $P_{3769} = (8, 10, 13, 1)$
100 : $P_{3791} = (14, 11, 13, 1)$
101 : $P_{3836} = (11, 14, 13, 1)$
102 : $P_{3882} = (9, 1, 14, 1)$
103 : $P_{3904} = (15, 2, 14, 1)$
104 : $P_{3947} = (10, 5, 14, 1)$
105 : $P_{4002} = (1, 9, 14, 1)$
106 : $P_{4022} = (5, 10, 14, 1)$
107 : $P_{4045} = (12, 11, 14, 1)$
108 : $P_{4060} = (11, 12, 14, 1)$
109 : $P_{4078} = (13, 13, 14, 1)$
110 : $P_{4099} = (2, 15, 14, 1)$
111 : $P_{4137} = (8, 1, 15, 1)$
112 : $P_{4164} = (3, 3, 15, 1)$
113 : $P_{4184} = (7, 4, 15, 1)$
114 : $P_{4220} = (11, 6, 15, 1)$
115 : $P_{4229} = (4, 7, 15, 1)$
116 : $P_{4242} = (1, 8, 15, 1)$
117 : $P_{4287} = (14, 10, 15, 1)$
118 : $P_{4295} = (6, 11, 15, 1)$
119 : $P_{4347} = (10, 14, 15, 1)$

Line Intersection Graph

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
0	0	1	1	1	1	1	1	0	0	0	1	0	0	0	1
1	1	0	1	1	1	1	0	1	0	0	0	1	1	0	0
2	1	1	0	1	1	1	0	0	1	1	0	0	0	1	0
3	1	1	1	0	1	1	1	0	0	0	0	1	0	1	0
4	1	1	1	1	0	1	0	1	0	1	0	0	0	0	1
5	1	1	1	1	1	0	0	0	1	0	1	0	1	0	0
6	1	0	0	1	0	0	0	1	1	1	0	0	1	0	0
7	0	1	0	0	1	0	1	0	1	0	1	0	0	1	0
8	0	0	1	0	0	1	1	1	0	0	0	1	0	0	1
9	0	0	1	0	1	0	1	0	0	0	1	1	1	0	0
10	1	0	0	0	0	1	0	1	0	1	0	1	0	1	0
11	0	1	0	1	0	0	0	0	1	1	1	0	0	0	1
12	0	1	0	0	0	1	1	0	0	1	0	0	0	1	1
13	0	0	1	1	0	0	0	1	0	0	1	0	1	0	1
14	1	0	0	0	1	0	0	0	1	0	0	1	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_{10}	ℓ_{14}
in point	P_2	P_2	P_2	P_2	P_2	P_{531}	P_{2834}	P_{3090}

Line 1 intersects

Line	ℓ_0	ℓ_2	ℓ_3	ℓ_4	ℓ_5	ℓ_7	ℓ_{11}	ℓ_{12}
in point	P_2	P_2	P_2	P_2	P_2	P_{2843}	P_{3099}	P_{540}

Line 2 intersects

Line	ℓ_0	ℓ_1	ℓ_3	ℓ_4	ℓ_5	ℓ_8	ℓ_9	ℓ_{13}
in point	P_2	P_2	P_2	P_2	P_2	P_{3100}	P_{541}	P_{2844}

Line 3 intersects

Line	ℓ_0	ℓ_1	ℓ_2	ℓ_4	ℓ_5	ℓ_6	ℓ_{11}	ℓ_{13}
in point	P_2	P_2	P_2	P_2	P_2	P_{546}	P_{3105}	P_{2849}

Line 4 intersects

Line	ℓ_0	ℓ_1	ℓ_2	ℓ_3	ℓ_5	ℓ_7	ℓ_9	ℓ_{14}
in point	P_2	P_2	P_2	P_2	P_2	P_{2993}	P_{689}	P_{3249}

Line 5 intersects

Line	ℓ_0	ℓ_1	ℓ_2	ℓ_3	ℓ_4	ℓ_8	ℓ_{10}	ℓ_{12}
in point	P_2	P_2	P_2	P_2	P_2	P_{3265}	P_{3009}	P_{705}

Line 6 intersects

Line	ℓ_0	ℓ_3	ℓ_7	ℓ_8	ℓ_9	ℓ_{12}
in point	P_{531}	P_{546}	P_5	P_5	P_{715}	P_{700}

Line 7 intersects

Line	ℓ_1	ℓ_4	ℓ_6	ℓ_8	ℓ_{10}	ℓ_{13}
in point	P_{2843}	P_{2993}	P_5	P_5	P_{2860}	P_{3010}

Line 8 intersects

Line	ℓ_2	ℓ_5	ℓ_6	ℓ_7	ℓ_{11}	ℓ_{14}
in point	P_{3100}	P_{3265}	P_5	P_5	P_{3250}	P_{3115}

Line 9 intersects

Line	ℓ_2	ℓ_4	ℓ_6	ℓ_{10}	ℓ_{11}	ℓ_{12}
in point	P_{541}	P_{689}	P_{715}	P_{14}	P_{14}	P_4

Line 10 intersects

Line	ℓ_0	ℓ_5	ℓ_7	ℓ_9	ℓ_{11}	ℓ_{13}
in point	P_{2834}	P_{3009}	P_{2860}	P_{14}	P_{14}	P_{3003}

Line 11 intersects

Line	ℓ_1	ℓ_3	ℓ_8	ℓ_9	ℓ_{10}	ℓ_{14}
in point	P_{3099}	P_{3105}	P_{3250}	P_{14}	P_{14}	P_{3276}

Line 12 intersects

Line	ℓ_1	ℓ_5	ℓ_6	ℓ_9	ℓ_{13}	ℓ_{14}
in point	P_{540}	P_{705}	P_{700}	P_4	P_{15}	P_{15}

Line 13 intersects

Line	ℓ_2	ℓ_3	ℓ_7	ℓ_{10}	ℓ_{12}	ℓ_{14}
in point	P_{2844}	P_{2849}	P_{3010}	P_{3003}	P_{15}	P_{15}

Line 14 intersects

Line	ℓ_0	ℓ_4	ℓ_8	ℓ_{11}	ℓ_{12}	ℓ_{13}
in point	P_{3090}	P_{3249}	P_{3115}	P_{3276}	P_{15}	P_{15}

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

0 : $P_2 = (0, 0, 1, 0)$
1 : $P_4 = (1, 1, 1, 1)$
2 : $P_5 = (1, 1, 0, 0)$
3 : $P_{14} = (10, 1, 0, 0)$
4 : $P_{15} = (11, 1, 0, 0)$
5 : $P_{60} = (9, 2, 1, 0)$
6 : $P_{73} = (6, 3, 1, 0)$
7 : $P_{97} = (14, 4, 1, 0)$
8 : $P_{112} = (13, 5, 1, 0)$
9 : $P_{118} = (3, 6, 1, 0)$
10 : $P_{139} = (8, 7, 1, 0)$
11 : $P_{154} = (7, 8, 1, 0)$
12 : $P_{165} = (2, 9, 1, 0)$
13 : $P_{226} = (15, 12, 1, 0)$
14 : $P_{232} = (5, 13, 1, 0)$
15 : $P_{247} = (4, 14, 1, 0)$
16 : $P_{271} = (12, 15, 1, 0)$
17 : $P_{275} = (1, 0, 0, 1)$
18 : $P_{284} = (10, 0, 0, 1)$
19 : $P_{285} = (11, 0, 0, 1)$
20 : $P_{290} = (0, 1, 0, 1)$
21 : $P_{434} = (0, 10, 0, 1)$
22 : $P_{450} = (0, 11, 0, 1)$
23 : $P_{531} = (1, 0, 1, 1)$
24 : $P_{540} = (10, 0, 1, 1)$
25 : $P_{541} = (11, 0, 1, 1)$
26 : $P_{546} = (0, 1, 1, 1)$
27 : $P_{564} = (3, 2, 1, 1)$
28 : $P_{566} = (5, 2, 1, 1)$
29 : $P_{567} = (6, 2, 1, 1)$

30 : $P_{579} = (2, 3, 1, 1)$
31 : $P_{589} = (12, 3, 1, 1)$
32 : $P_{591} = (14, 3, 1, 1)$
33 : $P_{598} = (5, 4, 1, 1)$
34 : $P_{601} = (8, 4, 1, 1)$
35 : $P_{606} = (13, 4, 1, 1)$
36 : $P_{611} = (2, 5, 1, 1)$
37 : $P_{613} = (4, 5, 1, 1)$
38 : $P_{615} = (6, 5, 1, 1)$
39 : $P_{627} = (2, 6, 1, 1)$
40 : $P_{630} = (5, 6, 1, 1)$
41 : $P_{632} = (7, 6, 1, 1)$
42 : $P_{647} = (6, 7, 1, 1)$
43 : $P_{650} = (9, 7, 1, 1)$
44 : $P_{656} = (15, 7, 1, 1)$
45 : $P_{661} = (4, 8, 1, 1)$
46 : $P_{666} = (9, 8, 1, 1)$
47 : $P_{670} = (13, 8, 1, 1)$
48 : $P_{680} = (7, 9, 1, 1)$
49 : $P_{681} = (8, 9, 1, 1)$
50 : $P_{688} = (15, 9, 1, 1)$
51 : $P_{689} = (0, 10, 1, 1)$
52 : $P_{700} = (11, 10, 1, 1)$
53 : $P_{705} = (0, 11, 1, 1)$
54 : $P_{715} = (10, 11, 1, 1)$
55 : $P_{724} = (3, 12, 1, 1)$
56 : $P_{734} = (13, 12, 1, 1)$
57 : $P_{735} = (14, 12, 1, 1)$
58 : $P_{741} = (4, 13, 1, 1)$
59 : $P_{745} = (8, 13, 1, 1)$
60 : $P_{749} = (12, 13, 1, 1)$
61 : $P_{756} = (3, 14, 1, 1)$
62 : $P_{765} = (12, 14, 1, 1)$
63 : $P_{768} = (15, 14, 1, 1)$
64 : $P_{776} = (7, 15, 1, 1)$
65 : $P_{778} = (9, 15, 1, 1)$
66 : $P_{783} = (14, 15, 1, 1)$
67 : $P_{786} = (1, 0, 2, 1)$
68 : $P_{795} = (10, 0, 2, 1)$
69 : $P_{796} = (11, 0, 2, 1)$
70 : $P_{801} = (0, 1, 2, 1)$
71 : $P_{815} = (14, 1, 2, 1)$
72 : $P_{837} = (4, 3, 2, 1)$
73 : $P_{852} = (3, 4, 2, 1)$
74 : $P_{891} = (10, 6, 2, 1)$
75 : $P_{904} = (7, 7, 2, 1)$
76 : $P_{924} = (11, 8, 2, 1)$
77 : $P_{945} = (0, 10, 2, 1)$
78 : $P_{951} = (6, 10, 2, 1)$
79 : $P_{961} = (0, 11, 2, 1)$
80 : $P_{969} = (8, 11, 2, 1)$
81 : $P_{1010} = (1, 14, 2, 1)$
82 : $P_{1042} = (1, 0, 3, 1)$
83 : $P_{1051} = (10, 0, 3, 1)$
84 : $P_{1052} = (11, 0, 3, 1)$
85 : $P_{1057} = (0, 1, 3, 1)$
86 : $P_{1072} = (15, 1, 3, 1)$
87 : $P_{1084} = (11, 2, 3, 1)$
88 : $P_{1126} = (5, 5, 3, 1)$
89 : $P_{1197} = (12, 9, 3, 1)$
90 : $P_{1201} = (0, 10, 3, 1)$
91 : $P_{1214} = (13, 10, 3, 1)$
92 : $P_{1217} = (0, 11, 3, 1)$
93 : $P_{1219} = (2, 11, 3, 1)$
94 : $P_{1242} = (9, 12, 3, 1)$
95 : $P_{1259} = (10, 13, 3, 1)$
96 : $P_{1282} = (1, 15, 3, 1)$
97 : $P_{1298} = (1, 0, 4, 1)$
98 : $P_{1307} = (10, 0, 4, 1)$
99 : $P_{1308} = (11, 0, 4, 1)$
100 : $P_{1313} = (0, 1, 4, 1)$
101 : $P_{1315} = (2, 1, 4, 1)$
102 : $P_{1330} = (1, 2, 4, 1)$
103 : $P_{1386} = (9, 5, 4, 1)$
104 : $P_{1446} = (5, 9, 4, 1)$
105 : $P_{1457} = (0, 10, 4, 1)$
106 : $P_{1472} = (15, 10, 4, 1)$
107 : $P_{1473} = (0, 11, 4, 1)$
108 : $P_{1486} = (13, 11, 4, 1)$
109 : $P_{1501} = (12, 12, 4, 1)$
110 : $P_{1516} = (11, 13, 4, 1)$
111 : $P_{1547} = (10, 15, 4, 1)$
112 : $P_{1554} = (1, 0, 5, 1)$
113 : $P_{1563} = (10, 0, 5, 1)$
114 : $P_{1564} = (11, 0, 5, 1)$
115 : $P_{1569} = (0, 1, 5, 1)$
116 : $P_{1572} = (3, 1, 5, 1)$
117 : $P_{1602} = (1, 3, 5, 1)$
118 : $P_{1627} = (10, 4, 5, 1)$
119 : $P_{1663} = (14, 6, 5, 1)$
120 : $P_{1676} = (11, 7, 5, 1)$
121 : $P_{1689} = (8, 8, 5, 1)$
122 : $P_{1713} = (0, 10, 5, 1)$
123 : $P_{1717} = (4, 10, 5, 1)$
124 : $P_{1729} = (0, 11, 5, 1)$
125 : $P_{1736} = (7, 11, 5, 1)$
126 : $P_{1783} = (6, 14, 5, 1)$
127 : $P_{1810} = (1, 0, 6, 1)$
128 : $P_{1819} = (10, 0, 6, 1)$
129 : $P_{1820} = (11, 0, 6, 1)$
130 : $P_{1825} = (0, 1, 6, 1)$
131 : $P_{1837} = (12, 1, 6, 1)$
132 : $P_{1843} = (2, 2, 6, 1)$
133 : $P_{1900} = (11, 5, 6, 1)$
134 : $P_{1963} = (10, 9, 6, 1)$
135 : $P_{1969} = (0, 10, 6, 1)$
136 : $P_{1978} = (9, 10, 6, 1)$
137 : $P_{1985} = (0, 11, 6, 1)$
138 : $P_{1990} = (5, 11, 6, 1)$
139 : $P_{2002} = (1, 12, 6, 1)$
140 : $P_{2032} = (15, 13, 6, 1)$
141 : $P_{2062} = (13, 15, 6, 1)$
142 : $P_{2066} = (1, 0, 7, 1)$
143 : $P_{2075} = (10, 0, 7, 1)$
144 : $P_{2076} = (11, 0, 7, 1)$
145 : $P_{2081} = (0, 1, 7, 1)$
146 : $P_{2094} = (13, 1, 7, 1)$
147 : $P_{2107} = (10, 2, 7, 1)$
148 : $P_{2157} = (12, 5, 7, 1)$
149 : $P_{2218} = (9, 9, 7, 1)$
150 : $P_{2225} = (0, 10, 7, 1)$
151 : $P_{2227} = (2, 10, 7, 1)$
152 : $P_{2241} = (0, 11, 7, 1)$
153 : $P_{2256} = (15, 11, 7, 1)$
154 : $P_{2262} = (5, 12, 7, 1)$
155 : $P_{2274} = (1, 13, 7, 1)$
156 : $P_{2316} = (11, 15, 7, 1)$
157 : $P_{2322} = (1, 0, 8, 1)$
158 : $P_{2331} = (10, 0, 8, 1)$
159 : $P_{2332} = (11, 0, 8, 1)$
160 : $P_{2337} = (0, 1, 8, 1)$
161 : $P_{2342} = (5, 1, 8, 1)$
162 : $P_{2366} = (13, 2, 8, 1)$
163 : $P_{2402} = (1, 5, 8, 1)$
164 : $P_{2476} = (11, 9, 8, 1)$
165 : $P_{2481} = (0, 10, 8, 1)$
166 : $P_{2493} = (12, 10, 8, 1)$
167 : $P_{2497} = (0, 11, 8, 1)$
168 : $P_{2506} = (9, 11, 8, 1)$
169 : $P_{2523} = (10, 12, 8, 1)$
170 : $P_{2531} = (2, 13, 8, 1)$
171 : $P_{2576} = (15, 15, 8, 1)$
172 : $P_{2578} = (1, 0, 9, 1)$
173 : $P_{2587} = (10, 0, 9, 1)$
174 : $P_{2588} = (11, 0, 9, 1)$
175 : $P_{2593} = (0, 1, 9, 1)$
176 : $P_{2597} = (4, 1, 9, 1)$
177 : $P_{2636} = (11, 3, 9, 1)$
178 : $P_{2642} = (1, 4, 9, 1)$
179 : $P_{2679} = (6, 6, 9, 1)$
180 : $P_{2699} = (10, 7, 9, 1)$
181 : $P_{2719} = (14, 8, 9, 1)$
182 : $P_{2737} = (0, 10, 9, 1)$
183 : $P_{2744} = (7, 10, 9, 1)$
184 : $P_{2753} = (0, 11, 9, 1)$
185 : $P_{2756} = (3, 11, 9, 1)$
186 : $P_{2809} = (8, 14, 9, 1)$
187 : $P_{2834} = (1, 0, 10, 1)$
188 : $P_{2843} = (10, 0, 10, 1)$
189 : $P_{2844} = (11, 0, 10, 1)$
190 : $P_{2849} = (0, 1, 10, 1)$
191 : $P_{2860} = (11, 1, 10, 1)$

192 : $P_{2869} = (4, 2, 10, 1)$
193 : $P_{2873} = (8, 2, 10, 1)$
194 : $P_{2877} = (12, 2, 10, 1)$
195 : $P_{2887} = (6, 3, 10, 1)$
196 : $P_{2890} = (9, 3, 10, 1)$
197 : $P_{2896} = (15, 3, 10, 1)$
198 : $P_{2899} = (2, 4, 10, 1)$
199 : $P_{2909} = (12, 4, 10, 1)$
200 : $P_{2911} = (14, 4, 10, 1)$
201 : $P_{2920} = (7, 5, 10, 1)$
202 : $P_{2921} = (8, 5, 10, 1)$
203 : $P_{2928} = (15, 5, 10, 1)$
204 : $P_{2932} = (3, 6, 10, 1)$
205 : $P_{2941} = (12, 6, 10, 1)$
206 : $P_{2944} = (15, 6, 10, 1)$
207 : $P_{2950} = (5, 7, 10, 1)$
208 : $P_{2953} = (8, 7, 10, 1)$
209 : $P_{2958} = (13, 7, 10, 1)$
210 : $P_{2963} = (2, 8, 10, 1)$
211 : $P_{2966} = (5, 8, 10, 1)$
212 : $P_{2968} = (7, 8, 10, 1)$
213 : $P_{2980} = (3, 9, 10, 1)$
214 : $P_{2990} = (13, 9, 10, 1)$
215 : $P_{2991} = (14, 9, 10, 1)$
216 : $P_{2993} = (0, 10, 10, 1)$
217 : $P_{3003} = (10, 10, 10, 1)$
218 : $P_{3009} = (0, 11, 10, 1)$
219 : $P_{3010} = (1, 11, 10, 1)$
220 : $P_{3027} = (2, 12, 10, 1)$
221 : $P_{3029} = (4, 12, 10, 1)$
222 : $P_{3031} = (6, 12, 10, 1)$
223 : $P_{3048} = (7, 13, 10, 1)$
224 : $P_{3050} = (9, 13, 10, 1)$
225 : $P_{3055} = (14, 13, 10, 1)$
226 : $P_{3061} = (4, 14, 10, 1)$
227 : $P_{3066} = (9, 14, 10, 1)$
228 : $P_{3070} = (13, 14, 10, 1)$
229 : $P_{3076} = (3, 15, 10, 1)$
230 : $P_{3078} = (5, 15, 10, 1)$
231 : $P_{3079} = (6, 15, 10, 1)$
232 : $P_{3090} = (1, 0, 11, 1)$
233 : $P_{3099} = (10, 0, 11, 1)$
234 : $P_{3100} = (11, 0, 11, 1)$
235 : $P_{3105} = (0, 1, 11, 1)$
236 : $P_{3115} = (10, 1, 11, 1)$
237 : $P_{3128} = (7, 2, 11, 1)$
238 : $P_{3130} = (9, 2, 11, 1)$
239 : $P_{3135} = (14, 2, 11, 1)$
240 : $P_{3142} = (5, 3, 11, 1)$
241 : $P_{3145} = (8, 3, 11, 1)$
242 : $P_{3150} = (13, 3, 11, 1)$
243 : $P_{3159} = (6, 4, 11, 1)$
244 : $P_{3162} = (9, 4, 11, 1)$
245 : $P_{3168} = (15, 4, 11, 1)$
246 : $P_{3172} = (3, 5, 11, 1)$
247 : $P_{3182} = (13, 5, 11, 1)$
248 : $P_{3183} = (14, 5, 11, 1)$
249 : $P_{3189} = (4, 6, 11, 1)$
250 : $P_{3194} = (9, 6, 11, 1)$
251 : $P_{3198} = (13, 6, 11, 1)$
252 : $P_{3203} = (2, 7, 11, 1)$
253 : $P_{3213} = (12, 7, 11, 1)$
254 : $P_{3215} = (14, 7, 11, 1)$
255 : $P_{3220} = (3, 8, 11, 1)$
256 : $P_{3229} = (12, 8, 11, 1)$
257 : $P_{3232} = (15, 8, 11, 1)$
258 : $P_{3235} = (2, 9, 11, 1)$
259 : $P_{3237} = (4, 9, 11, 1)$
260 : $P_{3239} = (6, 9, 11, 1)$
261 : $P_{3249} = (0, 10, 11, 1)$
262 : $P_{3250} = (1, 10, 11, 1)$
263 : $P_{3265} = (0, 11, 11, 1)$
264 : $P_{3276} = (11, 11, 11, 1)$
265 : $P_{3288} = (7, 12, 11, 1)$
266 : $P_{3289} = (8, 12, 11, 1)$
267 : $P_{3296} = (15, 12, 11, 1)$
268 : $P_{3300} = (3, 13, 11, 1)$
269 : $P_{3302} = (5, 13, 11, 1)$
270 : $P_{3303} = (6, 13, 11, 1)$
271 : $P_{3315} = (2, 14, 11, 1)$
272 : $P_{3318} = (5, 14, 11, 1)$
273 : $P_{3320} = (7, 14, 11, 1)$
274 : $P_{3333} = (4, 15, 11, 1)$
275 : $P_{3337} = (8, 15, 11, 1)$
276 : $P_{3341} = (12, 15, 11, 1)$
277 : $P_{3346} = (1, 0, 12, 1)$
278 : $P_{3355} = (10, 0, 12, 1)$
279 : $P_{3356} = (11, 0, 12, 1)$
280 : $P_{3361} = (0, 1, 12, 1)$
281 : $P_{3368} = (7, 1, 12, 1)$
282 : $P_{3403} = (10, 3, 12, 1)$
283 : $P_{3420} = (11, 4, 12, 1)$
284 : $P_{3449} = (8, 6, 12, 1)$
285 : $P_{3458} = (1, 7, 12, 1)$
286 : $P_{3479} = (6, 8, 12, 1)$
287 : $P_{3505} = (0, 10, 12, 1)$
288 : $P_{3508} = (3, 10, 12, 1)$
289 : $P_{3521} = (0, 11, 12, 1)$
290 : $P_{3525} = (4, 11, 12, 1)$
291 : $P_{3583} = (14, 14, 12, 1)$
292 : $P_{3602} = (1, 0, 13, 1)$
293 : $P_{3611} = (10, 0, 13, 1)$
294 : $P_{3612} = (11, 0, 13, 1)$
295 : $P_{3617} = (0, 1, 13, 1)$
296 : $P_{3623} = (6, 1, 13, 1)$
297 : $P_{3656} = (7, 3, 13, 1)$
298 : $P_{3669} = (4, 4, 13, 1)$
299 : $P_{3698} = (1, 6, 13, 1)$
300 : $P_{3716} = (3, 7, 13, 1)$
301 : $P_{3739} = (10, 8, 13, 1)$
302 : $P_{3761} = (0, 10, 13, 1)$
303 : $P_{3769} = (8, 10, 13, 1)$
304 : $P_{3777} = (0, 11, 13, 1)$
305 : $P_{3791} = (14, 11, 13, 1)$
306 : $P_{3836} = (11, 14, 13, 1)$
307 : $P_{3858} = (1, 0, 14, 1)$
308 : $P_{3867} = (10, 0, 14, 1)$
309 : $P_{3868} = (11, 0, 14, 1)$
310 : $P_{3873} = (0, 1, 14, 1)$
311 : $P_{3882} = (9, 1, 14, 1)$
312 : $P_{3904} = (15, 2, 14, 1)$
313 : $P_{3947} = (10, 5, 14, 1)$
314 : $P_{4002} = (1, 9, 14, 1)$
315 : $P_{4017} = (0, 10, 14, 1)$
316 : $P_{4022} = (5, 10, 14, 1)$
317 : $P_{4033} = (0, 11, 14, 1)$
318 : $P_{4045} = (12, 11, 14, 1)$
319 : $P_{4060} = (11, 12, 14, 1)$
320 : $P_{4078} = (13, 13, 14, 1)$
321 : $P_{4099} = (2, 15, 14, 1)$
322 : $P_{4114} = (1, 0, 15, 1)$
323 : $P_{4123} = (10, 0, 15, 1)$
324 : $P_{4124} = (11, 0, 15, 1)$
325 : $P_{4129} = (0, 1, 15, 1)$
326 : $P_{4137} = (8, 1, 15, 1)$
327 : $P_{4164} = (3, 3, 15, 1)$
328 : $P_{4184} = (7, 4, 15, 1)$
329 : $P_{4220} = (11, 6, 15, 1)$
330 : $P_{4229} = (4, 7, 15, 1)$
331 : $P_{4242} = (1, 8, 15, 1)$
332 : $P_{4273} = (0, 10, 15, 1)$
333 : $P_{4287} = (14, 10, 15, 1)$
334 : $P_{4289} = (0, 11, 15, 1)$
335 : $P_{4295} = (6, 11, 15, 1)$
336 : $P_{4347} = (10, 14, 15, 1)$