Rank-74051 over GF(32)

January 15, 2021

The equation

The equation of the surface is :

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

(0, 0, 0, 0, 0, 0, 1, 0, 1, 0, 0, 0, 0, 1, 0, 0, 1, 0, 0, 0)
The point rank of the equation over GF(32) is -2112846811

General information

Number of lines	10
Number of points	1153
Number of singular points	1
Number of Eckardt points	2
Number of double points	9
Number of single points	301
Number of points off lines	840
Number of Hesse planes	0
Number of axes	0
Type of points on lines	33^{10}
Type of lines on points	5, 3^2, 2^9, 1^{301}, 0^{840}

Singular Points

The surface has 1 singular points:

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

The 10 Lines

The lines and their Pluecker coordinates are:

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

$$\ell_1 = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{1024} = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{1024} = \mathbf{Pl}(0,0,1,0,0,0)_2$$

$$\ell_2 = \begin{bmatrix} 1 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{2081} = \begin{bmatrix} 1 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{2081} = \mathbf{Pl}(0,0,1,0,0,1)_{34912}$$

$$\ell_3 = \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{1082400} = \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{1082400} = \mathbf{Pl}(0,0,0,1,0,0)_{65}$$

$$\ell_4 = \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 1 & 0 & 0 \end{bmatrix}_{33824} = \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 1 & 0 & 0 \end{bmatrix}_{33824} = \mathbf{Pl}(1,0,0,1,0,0)_{66}$$

$$\ell_5 = \begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{1083424} = \begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{1083424} = \mathbf{Pl}(0,1,0,0,0,0)_1$$

$$\ell_6 = \begin{bmatrix} 1 & 1 & 0 & 1 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{35905} = \begin{bmatrix} 1 & 1 & 0 & 1 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{35905} = \mathbf{Pl}(0,1,1,0,0,1)_{34944}$$

$$\ell_7 = \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{34848} = \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{34848} = \mathbf{Pl}(0,1,1,0,0,0)_{34}$$

$$\ell_8 = \begin{bmatrix} 1 & 0 & 1 & 0 \\ 0 & 1 & 0 & 1 \end{bmatrix}_{1089} = \begin{bmatrix} 1 & 0 & 1 & 0 \\ 0 & 1 & 0 & 1 \end{bmatrix}_{1089} = \mathbf{Pl}(1,1,0,0,1,1)_{68609}$$

$$\ell_9 = \begin{bmatrix} 1 & 0 & 1 & 1 \\ 0 & 1 & 0 & 1 \end{bmatrix}_{34913} = \begin{bmatrix} 1 & 0 & 1 & 1 \\ 0 & 1 & 0 & 1 \end{bmatrix}_{34913} = \mathbf{Pl}(1,1,0,1,1,1)_{69601}$$

Rank of lines: (0, 1024, 2081, 1082400, 33824, 1083424, 35905, 34848, 1089, 34913)
Rank of points on Klein quadric: (0, 2, 34912, 65, 66, 1, 34944, 34, 68609, 69601)

Eckardt Points

The surface has 2 Eckardt points:
$0 : P_1 = \mathbf{P}(0,1,0,0) = \mathbf{P}(0,1,0,0)$,
$1 : P_{1090} = \mathbf{P}(0,1,0,1) = \mathbf{P}(0,1,0,1)$.

Double Points

The surface has 9 Double points:
The double points on the surface are:

$P_0 = (1,0,0,0) = \ell_0 \cap \ell_1$
$P_5 = (1,1,0,0) = \ell_0 \cap \ell_2$
$P_{36} = (1,0,1,0) = \ell_1 \cap \ell_8$
$P_{68} = (1,1,1,0) = \ell_2 \cap \ell_9$
$P_3 = (0,0,0,1) = \ell_3 \cap \ell_5$
$P_{1091} = (1,1,0,1) = \ell_4 \cap \ell_6$
$P_{1059} = (1,0,0,1) = \ell_4 \cap \ell_7$
$P_4 = (1,1,1,1) = \ell_6 \cap \ell_8$
$P_{2083} = (1,0,1,1) = \ell_7 \cap \ell_9$

Single Points

The surface has 301 single points:
The single points on the surface are:

$0:\ P_{6} = (2,1,0,0)$ lies on line ℓ_0
$1:\ P_{7} = (3,1,0,0)$ lies on line ℓ_0
$2:\ P_{8} = (4,1,0,0)$ lies on line ℓ_0
$3:\ P_{9} = (5,1,0,0)$ lies on line ℓ_0
$4:\ P_{10} = (6,1,0,0)$ lies on line ℓ_0
$5:\ P_{11} = (7,1,0,0)$ lies on line ℓ_0
$6:\ P_{12} = (8,1,0,0)$ lies on line ℓ_0
$7:\ P_{13} = (9,1,0,0)$ lies on line ℓ_0
$8:\ P_{14} = (10,1,0,0)$ lies on line ℓ_0
$9:\ P_{15} = (11,1,0,0)$ lies on line ℓ_0
$10:\ P_{16} = (12,1,0,0)$ lies on line ℓ_0
$11:\ P_{17} = (13,1,0,0)$ lies on line ℓ_0
$12:\ P_{18} = (14,1,0,0)$ lies on line ℓ_0
$13:\ P_{19} = (15,1,0,0)$ lies on line ℓ_0
$14:\ P_{20} = (16,1,0,0)$ lies on line ℓ_0
$15:\ P_{21} = (17,1,0,0)$ lies on line ℓ_0
$16:\ P_{22} = (18,1,0,0)$ lies on line ℓ_0
$17:\ P_{23} = (19,1,0,0)$ lies on line ℓ_0
$18:\ P_{24} = (20,1,0,0)$ lies on line ℓ_0
$19:\ P_{25} = (21,1,0,0)$ lies on line ℓ_0
$20:\ P_{26} = (22,1,0,0)$ lies on line ℓ_0
$21:\ P_{27} = (23,1,0,0)$ lies on line ℓ_0
$22:\ P_{28} = (24,1,0,0)$ lies on line ℓ_0
$23:\ P_{29} = (25,1,0,0)$ lies on line ℓ_0
$24:\ P_{30} = (26,1,0,0)$ lies on line ℓ_0
$25:\ P_{31} = (27,1,0,0)$ lies on line ℓ_0
$26:\ P_{32} = (28,1,0,0)$ lies on line ℓ_0
$27:\ P_{33} = (29,1,0,0)$ lies on line ℓ_0
$28:\ P_{34} = (30,1,0,0)$ lies on line ℓ_0
$29:\ P_{35} = (31,1,0,0)$ lies on line ℓ_0
$30:\ P_{37} = (2,0,1,0)$ lies on line ℓ_1
$31:\ P_{38} = (3,0,1,0)$ lies on line ℓ_1
$32:\ P_{39} = (4,0,1,0)$ lies on line ℓ_1
$33:\ P_{40} = (5,0,1,0)$ lies on line ℓ_1
$34:\ P_{41} = (6,0,1,0)$ lies on line ℓ_1
$35:\ P_{42} = (7,0,1,0)$ lies on line ℓ_1
$36:\ P_{43} = (8,0,1,0)$ lies on line ℓ_1
$37:\ P_{44} = (9,0,1,0)$ lies on line ℓ_1
$38:\ P_{45} = (10,0,1,0)$ lies on line ℓ_1
$39:\ P_{46} = (11,0,1,0)$ lies on line ℓ_1
$40:\ P_{47} = (12,0,1,0)$ lies on line ℓ_1
$41:\ P_{48} = (13,0,1,0)$ lies on line ℓ_1
$42:\ P_{49} = (14,0,1,0)$ lies on line ℓ_1
$43:\ P_{50} = (15,0,1,0)$ lies on line ℓ_1
$44:\ P_{51} = (16,0,1,0)$ lies on line ℓ_1
$45:\ P_{52} = (17,0,1,0)$ lies on line ℓ_1
$46:\ P_{53} = (18,0,1,0)$ lies on line ℓ_1
$47:\ P_{54} = (19,0,1,0)$ lies on line ℓ_1
$48:\ P_{55} = (20,0,1,0)$ lies on line ℓ_1
$49:\ P_{56} = (21,0,1,0)$ lies on line ℓ_1
$50:\ P_{57} = (22,0,1,0)$ lies on line ℓ_1
$51:\ P_{58} = (23,0,1,0)$ lies on line ℓ_1
$52:\ P_{59} = (24,0,1,0)$ lies on line ℓ_1
$53:\ P_{60} = (25,0,1,0)$ lies on line ℓ_1
$54:\ P_{61} = (26,0,1,0)$ lies on line ℓ_1
$55:\ P_{62} = (27,0,1,0)$ lies on line ℓ_1
$56:\ P_{63} = (28,0,1,0)$ lies on line ℓ_1
$57:\ P_{64} = (29,0,1,0)$ lies on line ℓ_1
$58:\ P_{65} = (30,0,1,0)$ lies on line ℓ_1
$59:\ P_{66} = (31,0,1,0)$ lies on line ℓ_1
$60:\ P_{101} = (2,2,1,0)$ lies on line ℓ_2
$61:\ P_{134} = (3,3,1,0)$ lies on line ℓ_2
$62:\ P_{167} = (4,4,1,0)$ lies on line ℓ_2
$63:\ P_{200} = (5,5,1,0)$ lies on line ℓ_2
$64:\ P_{233} = (6,6,1,0)$ lies on line ℓ_2
$65:\ P_{266} = (7,7,1,0)$ lies on line ℓ_2
$66:\ P_{299} = (8,8,1,0)$ lies on line ℓ_2
$67:\ P_{332} = (9,9,1,0)$ lies on line ℓ_2
$68:\ P_{365} = (10,10,1,0)$ lies on line ℓ_2
$69:\ P_{398} = (11,11,1,0)$ lies on line ℓ_2
$70:\ P_{431} = (12,12,1,0)$ lies on line ℓ_2
$71:\ P_{464} = (13,13,1,0)$ lies on line ℓ_2
$72:\ P_{497} = (14,14,1,0)$ lies on line ℓ_2
$73:\ P_{530} = (15,15,1,0)$ lies on line ℓ_2
$74:\ P_{563} = (16,16,1,0)$ lies on line ℓ_2
$75:\ P_{596} = (17,17,1,0)$ lies on line ℓ_2
$76:\ P_{629} = (18,18,1,0)$ lies on line ℓ_2
$77:\ P_{662} = (19,19,1,0)$ lies on line ℓ_2
$78:\ P_{695} = (20,20,1,0)$ lies on line ℓ_2
$79:\ P_{728} = (21,21,1,0)$ lies on line ℓ_2
$80:\ P_{761} = (22,22,1,0)$ lies on line ℓ_2
$81:\ P_{794} = (23,23,1,0)$ lies on line ℓ_2
$82:\ P_{827} = (24,24,1,0)$ lies on line ℓ_2
$83:\ P_{860} = (25,25,1,0)$ lies on line ℓ_2
$84:\ P_{893} = (26,26,1,0)$ lies on line ℓ_2
$85:\ P_{926} = (27,27,1,0)$ lies on line ℓ_2
$86:\ P_{959} = (28,28,1,0)$ lies on line ℓ_2
$87:\ P_{992} = (29,29,1,0)$ lies on line ℓ_2
$88:\ P_{1025} = (30,30,1,0)$ lies on line ℓ_2
$89:\ P_{1058} = (31,31,1,0)$ lies on line ℓ_2
$90:\ P_{1122} = (0,2,0,1)$ lies on line ℓ_3
$91:\ P_{1123} = (1,2,0,1)$ lies on line ℓ_4
$92:\ P_{1154} = (0,3,0,1)$ lies on line ℓ_3
$93:\ P_{1155} = (1,3,0,1)$ lies on line ℓ_4
$94:\ P_{1186} = (0,4,0,1)$ lies on line ℓ_3
$95:\ P_{1187} = (1,4,0,1)$ lies on line ℓ_4
$96:\ P_{1218} = (0,5,0,1)$ lies on line ℓ_3
$97:\ P_{1219} = (1,5,0,1)$ lies on line ℓ_4
$98:\ P_{1250} = (0,6,0,1)$ lies on line ℓ_3
$99:\ P_{1251} = (1,6,0,1)$ lies on line ℓ_4
$100:\ P_{1282} = (0,7,0,1)$ lies on line ℓ_3
$101:\ P_{1283} = (1,7,0,1)$ lies on line ℓ_4
$102:\ P_{1314} = (0,8,0,1)$ lies on line ℓ_3
$103:\ P_{1315} = (1,8,0,1)$ lies on line ℓ_4
$104:\ P_{1346} = (0,9,0,1)$ lies on line ℓ_3
$105:\ P_{1347} = (1,9,0,1)$ lies on line ℓ_4
$106:\ P_{1378} = (0,10,0,1)$ lies on line ℓ_3
$107:\ P_{1379} = (1,10,0,1)$ lies on line ℓ_4

108 : $P_{1410} = (0, 11, 0, 1)$ lies on line ℓ_3
109 : $P_{1411} = (1, 11, 0, 1)$ lies on line ℓ_4
110 : $P_{1442} = (0, 12, 0, 1)$ lies on line ℓ_3
111 : $P_{1443} = (1, 12, 0, 1)$ lies on line ℓ_4
112 : $P_{1474} = (0, 13, 0, 1)$ lies on line ℓ_3
113 : $P_{1475} = (1, 13, 0, 1)$ lies on line ℓ_4
114 : $P_{1506} = (0, 14, 0, 1)$ lies on line ℓ_3
115 : $P_{1507} = (1, 14, 0, 1)$ lies on line ℓ_4
116 : $P_{1538} = (0, 15, 0, 1)$ lies on line ℓ_3
117 : $P_{1539} = (1, 15, 0, 1)$ lies on line ℓ_4
118 : $P_{1570} = (0, 16, 0, 1)$ lies on line ℓ_3
119 : $P_{1571} = (1, 16, 0, 1)$ lies on line ℓ_4
120 : $P_{1602} = (0, 17, 0, 1)$ lies on line ℓ_3
121 : $P_{1603} = (1, 17, 0, 1)$ lies on line ℓ_4
122 : $P_{1634} = (0, 18, 0, 1)$ lies on line ℓ_3
123 : $P_{1635} = (1, 18, 0, 1)$ lies on line ℓ_4
124 : $P_{1666} = (0, 19, 0, 1)$ lies on line ℓ_3
125 : $P_{1667} = (1, 19, 0, 1)$ lies on line ℓ_4
126 : $P_{1698} = (0, 20, 0, 1)$ lies on line ℓ_3
127 : $P_{1699} = (1, 20, 0, 1)$ lies on line ℓ_4
128 : $P_{1730} = (0, 21, 0, 1)$ lies on line ℓ_3
129 : $P_{1731} = (1, 21, 0, 1)$ lies on line ℓ_4
130 : $P_{1762} = (0, 22, 0, 1)$ lies on line ℓ_3
131 : $P_{1763} = (1, 22, 0, 1)$ lies on line ℓ_4
132 : $P_{1794} = (0, 23, 0, 1)$ lies on line ℓ_3
133 : $P_{1795} = (1, 23, 0, 1)$ lies on line ℓ_4
134 : $P_{1826} = (0, 24, 0, 1)$ lies on line ℓ_3
135 : $P_{1827} = (1, 24, 0, 1)$ lies on line ℓ_4
136 : $P_{1858} = (0, 25, 0, 1)$ lies on line ℓ_3
137 : $P_{1859} = (1, 25, 0, 1)$ lies on line ℓ_4
138 : $P_{1890} = (0, 26, 0, 1)$ lies on line ℓ_3
139 : $P_{1891} = (1, 26, 0, 1)$ lies on line ℓ_4
140 : $P_{1922} = (0, 27, 0, 1)$ lies on line ℓ_3
141 : $P_{1923} = (1, 27, 0, 1)$ lies on line ℓ_4
142 : $P_{1954} = (0, 28, 0, 1)$ lies on line ℓ_3
143 : $P_{1955} = (1, 28, 0, 1)$ lies on line ℓ_4
144 : $P_{1986} = (0, 29, 0, 1)$ lies on line ℓ_3
145 : $P_{1987} = (1, 29, 0, 1)$ lies on line ℓ_4
146 : $P_{2018} = (0, 30, 0, 1)$ lies on line ℓ_3
147 : $P_{2019} = (1, 30, 0, 1)$ lies on line ℓ_4
148 : $P_{2050} = (0, 31, 0, 1)$ lies on line ℓ_3
149 : $P_{2051} = (1, 31, 0, 1)$ lies on line ℓ_4
150 : $P_{2082} = (0, 0, 1, 1)$ lies on line ℓ_5
151 : $P_{3105} = (0, 0, 2, 1)$ lies on line ℓ_5
152 : $P_{3106} = (1, 0, 2, 1)$ lies on line ℓ_7
153 : $P_{3138} = (1, 1, 2, 1)$ lies on line ℓ_6
154 : $P_{3139} = (2, 1, 2, 1)$ lies on line ℓ_8
155 : $P_{3203} = (2, 3, 2, 1)$ lies on line ℓ_9
156 : $P_{4129} = (0, 0, 3, 1)$ lies on line ℓ_5
157 : $P_{4130} = (1, 0, 3, 1)$ lies on line ℓ_7
158 : $P_{4162} = (1, 1, 3, 1)$ lies on line ℓ_6
159 : $P_{4164} = (3, 1, 3, 1)$ lies on line ℓ_8
160 : $P_{4196} = (3, 2, 3, 1)$ lies on line ℓ_9
161 : $P_{5153} = (0, 0, 4, 1)$ lies on line ℓ_5
162 : $P_{5154} = (1, 0, 4, 1)$ lies on line ℓ_7
163 : $P_{5186} = (1, 1, 4, 1)$ lies on line ℓ_6
164 : $P_{5189} = (4, 1, 4, 1)$ lies on line ℓ_8
165 : $P_{5317} = (4, 5, 4, 1)$ lies on line ℓ_9
166 : $P_{6177} = (0, 0, 5, 1)$ lies on line ℓ_5
167 : $P_{6178} = (1, 0, 5, 1)$ lies on line ℓ_7
168 : $P_{6210} = (1, 1, 5, 1)$ lies on line ℓ_6
169 : $P_{6214} = (5, 1, 5, 1)$ lies on line ℓ_8
170 : $P_{6310} = (5, 4, 5, 1)$ lies on line ℓ_9
171 : $P_{7201} = (0, 0, 6, 1)$ lies on line ℓ_5
172 : $P_{7202} = (1, 0, 6, 1)$ lies on line ℓ_7
173 : $P_{7234} = (1, 1, 6, 1)$ lies on line ℓ_6
174 : $P_{7239} = (6, 1, 6, 1)$ lies on line ℓ_8
175 : $P_{7431} = (6, 7, 6, 1)$ lies on line ℓ_9
176 : $P_{8225} = (0, 0, 7, 1)$ lies on line ℓ_5
177 : $P_{8226} = (1, 0, 7, 1)$ lies on line ℓ_7
178 : $P_{8258} = (1, 1, 7, 1)$ lies on line ℓ_6
179 : $P_{8264} = (7, 1, 7, 1)$ lies on line ℓ_8
180 : $P_{8424} = (7, 6, 7, 1)$ lies on line ℓ_9
181 : $P_{9249} = (0, 0, 8, 1)$ lies on line ℓ_5
182 : $P_{9250} = (1, 0, 8, 1)$ lies on line ℓ_7
183 : $P_{9282} = (1, 1, 8, 1)$ lies on line ℓ_6
184 : $P_{9289} = (8, 1, 8, 1)$ lies on line ℓ_8
185 : $P_{9545} = (8, 9, 8, 1)$ lies on line ℓ_9
186 : $P_{10273} = (0, 0, 9, 1)$ lies on line ℓ_5
187 : $P_{10274} = (1, 0, 9, 1)$ lies on line ℓ_7
188 : $P_{10306} = (1, 1, 9, 1)$ lies on line ℓ_6
189 : $P_{10314} = (9, 1, 9, 1)$ lies on line ℓ_8
190 : $P_{10538} = (9, 8, 9, 1)$ lies on line ℓ_9
191 : $P_{11297} = (0, 0, 10, 1)$ lies on line ℓ_5
192 : $P_{11298} = (1, 0, 10, 1)$ lies on line ℓ_7
193 : $P_{11330} = (1, 1, 10, 1)$ lies on line ℓ_6
194 : $P_{11339} = (10, 1, 10, 1)$ lies on line ℓ_8
195 : $P_{11659} = (10, 11, 10, 1)$ lies on line ℓ_9
196 : $P_{12321} = (0, 0, 11, 1)$ lies on line ℓ_5
197 : $P_{12322} = (1, 0, 11, 1)$ lies on line ℓ_7
198 : $P_{12354} = (1, 1, 11, 1)$ lies on line ℓ_6
199 : $P_{12364} = (11, 1, 11, 1)$ lies on line ℓ_8
200 : $P_{12652} = (11, 10, 11, 1)$ lies on line ℓ_9
201 : $P_{13345} = (0, 0, 12, 1)$ lies on line ℓ_5
202 : $P_{13346} = (1, 0, 12, 1)$ lies on line ℓ_7
203 : $P_{13378} = (1, 1, 12, 1)$ lies on line ℓ_6
204 : $P_{13389} = (12, 1, 12, 1)$ lies on line ℓ_8
205 : $P_{13773} = (12, 13, 12, 1)$ lies on line ℓ_9
206 : $P_{14369} = (0, 0, 13, 1)$ lies on line ℓ_5
207 : $P_{14370} = (1, 0, 13, 1)$ lies on line ℓ_7
208 : $P_{14402} = (1, 1, 13, 1)$ lies on line ℓ_6
209 : $P_{14414} = (13, 1, 13, 1)$ lies on line ℓ_8
210 : $P_{14766} = (13, 12, 13, 1)$ lies on line ℓ_9
211 : $P_{15393} = (0, 0, 14, 1)$ lies on line ℓ_5
212 : $P_{15394} = (1, 0, 14, 1)$ lies on line ℓ_7
213 : $P_{15426} = (1, 1, 14, 1)$ lies on line ℓ_6
214 : $P_{15439} = (14, 1, 14, 1)$ lies on line ℓ_8
215 : $P_{15887} = (14, 15, 14, 1)$ lies on line ℓ_9

216 : $P_{16417} = (0, 0, 15, 1)$ lies on line ℓ_5
217 : $P_{16418} = (1, 0, 15, 1)$ lies on line ℓ_7
218 : $P_{16450} = (1, 1, 15, 1)$ lies on line ℓ_6
219 : $P_{16464} = (15, 1, 15, 1)$ lies on line ℓ_8
220 : $P_{16880} = (15, 14, 15, 1)$ lies on line ℓ_9
221 : $P_{17441} = (0, 0, 16, 1)$ lies on line ℓ_5
222 : $P_{17442} = (1, 0, 16, 1)$ lies on line ℓ_7
223 : $P_{17474} = (1, 1, 16, 1)$ lies on line ℓ_6
224 : $P_{17489} = (16, 1, 16, 1)$ lies on line ℓ_8
225 : $P_{18001} = (16, 17, 16, 1)$ lies on line ℓ_9
226 : $P_{18465} = (0, 0, 17, 1)$ lies on line ℓ_5
227 : $P_{18466} = (1, 0, 17, 1)$ lies on line ℓ_7
228 : $P_{18498} = (1, 1, 17, 1)$ lies on line ℓ_6
229 : $P_{18514} = (17, 1, 17, 1)$ lies on line ℓ_8
230 : $P_{18994} = (17, 16, 17, 1)$ lies on line ℓ_9
231 : $P_{19489} = (0, 0, 18, 1)$ lies on line ℓ_5
232 : $P_{19490} = (1, 0, 18, 1)$ lies on line ℓ_7
233 : $P_{19522} = (1, 1, 18, 1)$ lies on line ℓ_6
234 : $P_{19539} = (18, 1, 18, 1)$ lies on line ℓ_8
235 : $P_{20115} = (18, 19, 18, 1)$ lies on line ℓ_9
236 : $P_{20513} = (0, 0, 19, 1)$ lies on line ℓ_5
237 : $P_{20514} = (1, 0, 19, 1)$ lies on line ℓ_7
238 : $P_{20546} = (1, 1, 19, 1)$ lies on line ℓ_6
239 : $P_{20564} = (19, 1, 19, 1)$ lies on line ℓ_8
240 : $P_{21108} = (19, 18, 19, 1)$ lies on line ℓ_9
241 : $P_{21537} = (0, 0, 20, 1)$ lies on line ℓ_5
242 : $P_{21538} = (1, 0, 20, 1)$ lies on line ℓ_7
243 : $P_{21570} = (1, 1, 20, 1)$ lies on line ℓ_6
244 : $P_{21589} = (20, 1, 20, 1)$ lies on line ℓ_8
245 : $P_{22229} = (20, 21, 20, 1)$ lies on line ℓ_9
246 : $P_{22561} = (0, 0, 21, 1)$ lies on line ℓ_5
247 : $P_{22562} = (1, 0, 21, 1)$ lies on line ℓ_7
248 : $P_{22594} = (1, 1, 21, 1)$ lies on line ℓ_6
249 : $P_{22614} = (21, 1, 21, 1)$ lies on line ℓ_8
250 : $P_{23222} = (21, 20, 21, 1)$ lies on line ℓ_9
251 : $P_{23585} = (0, 0, 22, 1)$ lies on line ℓ_5
252 : $P_{23586} = (1, 0, 22, 1)$ lies on line ℓ_7
253 : $P_{23618} = (1, 1, 22, 1)$ lies on line ℓ_6
254 : $P_{23639} = (22, 1, 22, 1)$ lies on line ℓ_8
255 : $P_{24343} = (22, 23, 22, 1)$ lies on line ℓ_9
256 : $P_{24609} = (0, 0, 23, 1)$ lies on line ℓ_5
257 : $P_{24610} = (1, 0, 23, 1)$ lies on line ℓ_7
258 : $P_{24642} = (1, 1, 23, 1)$ lies on line ℓ_6
259 : $P_{24664} = (23, 1, 23, 1)$ lies on line ℓ_8
260 : $P_{25336} = (23, 22, 23, 1)$ lies on line ℓ_9
261 : $P_{25633} = (0, 0, 24, 1)$ lies on line ℓ_5
262 : $P_{25634} = (1, 0, 24, 1)$ lies on line ℓ_7
263 : $P_{25666} = (1, 1, 24, 1)$ lies on line ℓ_6
264 : $P_{25689} = (24, 1, 24, 1)$ lies on line ℓ_8
265 : $P_{26457} = (24, 25, 24, 1)$ lies on line ℓ_9
266 : $P_{26657} = (0, 0, 25, 1)$ lies on line ℓ_5
267 : $P_{26658} = (1, 0, 25, 1)$ lies on line ℓ_7
268 : $P_{26690} = (1, 1, 25, 1)$ lies on line ℓ_6
269 : $P_{26714} = (25, 1, 25, 1)$ lies on line ℓ_8
270 : $P_{27450} = (25, 24, 25, 1)$ lies on line ℓ_9
271 : $P_{27681} = (0, 0, 26, 1)$ lies on line ℓ_5
272 : $P_{27682} = (1, 0, 26, 1)$ lies on line ℓ_7
273 : $P_{27714} = (1, 1, 26, 1)$ lies on line ℓ_6
274 : $P_{27739} = (26, 1, 26, 1)$ lies on line ℓ_8
275 : $P_{28571} = (26, 27, 26, 1)$ lies on line ℓ_9
276 : $P_{28705} = (0, 0, 27, 1)$ lies on line ℓ_5
277 : $P_{28706} = (1, 0, 27, 1)$ lies on line ℓ_7
278 : $P_{28738} = (1, 1, 27, 1)$ lies on line ℓ_6
279 : $P_{28764} = (27, 1, 27, 1)$ lies on line ℓ_8
280 : $P_{29564} = (27, 26, 27, 1)$ lies on line ℓ_9
281 : $P_{29729} = (0, 0, 28, 1)$ lies on line ℓ_5
282 : $P_{29730} = (1, 0, 28, 1)$ lies on line ℓ_7
283 : $P_{29762} = (1, 1, 28, 1)$ lies on line ℓ_6
284 : $P_{29789} = (28, 1, 28, 1)$ lies on line ℓ_8
285 : $P_{30685} = (28, 29, 28, 1)$ lies on line ℓ_9
286 : $P_{30753} = (0, 0, 29, 1)$ lies on line ℓ_5
287 : $P_{30754} = (1, 0, 29, 1)$ lies on line ℓ_7
288 : $P_{30786} = (1, 1, 29, 1)$ lies on line ℓ_6
289 : $P_{30814} = (29, 1, 29, 1)$ lies on line ℓ_8
290 : $P_{31678} = (29, 28, 29, 1)$ lies on line ℓ_9
291 : $P_{31777} = (0, 0, 30, 1)$ lies on line ℓ_5
292 : $P_{31778} = (1, 0, 30, 1)$ lies on line ℓ_7
293 : $P_{31810} = (1, 1, 30, 1)$ lies on line ℓ_6
294 : $P_{31839} = (30, 1, 30, 1)$ lies on line ℓ_8
295 : $P_{32799} = (30, 31, 30, 1)$ lies on line ℓ_9
296 : $P_{32801} = (0, 0, 31, 1)$ lies on line ℓ_5
297 : $P_{32802} = (1, 0, 31, 1)$ lies on line ℓ_7
298 : $P_{32834} = (1, 1, 31, 1)$ lies on line ℓ_6
299 : $P_{32864} = (31, 1, 31, 1)$ lies on line ℓ_8
300 : $P_{33792} = (31, 30, 31, 1)$ lies on line ℓ_9

The single points on the surface are:

Points on surface but on no line

The surface has 840 points not on any line:
The points on the surface but not on lines are:

$0: P_{2165} = (20, 2, 1, 1)$
$1: P_{2168} = (23, 2, 1, 1)$
$2: P_{2233} = (24, 4, 1, 1)$
$3: P_{2238} = (29, 4, 1, 1)$
$4: P_{2290} = (17, 6, 1, 1)$
$5: P_{2295} = (22, 6, 1, 1)$
$6: P_{2331} = (26, 7, 1, 1)$
$7: P_{2333} = (28, 7, 1, 1)$
$8: P_{2518} = (21, 13, 1, 1)$
$9: P_{2522} = (25, 13, 1, 1)$
$10: P_{2600} = (7, 16, 1, 1)$
$11: P_{2615} = (22, 16, 1, 1)$
$12: P_{2733} = (12, 20, 1, 1)$
$13: P_{2746} = (25, 20, 1, 1)$
$14: P_{2756} = (3, 21, 1, 1)$
$15: P_{2776} = (23, 21, 1, 1)$
$16: P_{2788} = (3, 22, 1, 1)$
$17: P_{2805} = (20, 22, 1, 1)$
$18: P_{2824} = (7, 23, 1, 1)$
$19: P_{2834} = (17, 23, 1, 1)$
$20: P_{2861} = (12, 24, 1, 1)$
$21: P_{2870} = (21, 24, 1, 1)$
$22: P_{2886} = (5, 25, 1, 1)$
$23: P_{2910} = (29, 25, 1, 1)$
$24: P_{2951} = (6, 27, 1, 1)$
$25: P_{2973} = (28, 27, 1, 1)$
$26: P_{2982} = (5, 28, 1, 1)$
$27: P_{3001} = (24, 28, 1, 1)$
$28: P_{3015} = (6, 29, 1, 1)$
$29: P_{3035} = (26, 29, 1, 1)$
$30: P_{3206} = (5, 3, 2, 1)$
$31: P_{3287} = (22, 5, 2, 1)$
$32: P_{3294} = (29, 5, 2, 1)$
$33: P_{3302} = (5, 6, 2, 1)$
$34: P_{3305} = (8, 6, 2, 1)$
$35: P_{3349} = (20, 7, 2, 1)$
$36: P_{3356} = (27, 7, 2, 1)$
$37: P_{3397} = (4, 9, 2, 1)$
$38: P_{3416} = (23, 9, 2, 1)$
$39: P_{3525} = (4, 13, 2, 1)$
$40: P_{3552} = (31, 13, 2, 1)$
$41: P_{3561} = (8, 14, 2, 1)$
$42: P_{3574} = (21, 14, 2, 1)$
$43: P_{3658} = (9, 17, 2, 1)$
$44: P_{3664} = (15, 17, 2, 1)$
$45: P_{3712} = (31, 18, 2, 1)$
$46: P_{3733} = (20, 19, 2, 1)$
$47: P_{3735} = (22, 19, 2, 1)$
$48: P_{3882} = (9, 24, 2, 1)$
$49: P_{3902} = (29, 24, 2, 1)$
$50: P_{3976} = (7, 27, 2, 1)$
$51: P_{3990} = (21, 27, 2, 1)$
$52: P_{4008} = (7, 28, 2, 1)$
$53: P_{4028} = (27, 28, 2, 1)$
$54: P_{4080} = (15, 30, 2, 1)$
$55: P_{4088} = (23, 30, 2, 1)$
$56: P_{4197} = (4, 2, 3, 1)$
$57: P_{4233} = (8, 3, 3, 1)$
$58: P_{4237} = (12, 3, 3, 1)$
$59: P_{4305} = (16, 5, 3, 1)$
$60: P_{4319} = (30, 5, 3, 1)$
$61: P_{4325} = (4, 6, 3, 1)$
$62: P_{4336} = (15, 6, 3, 1)$
$63: P_{4432} = (15, 9, 3, 1)$
$64: P_{4438} = (21, 9, 3, 1)$
$65: P_{4489} = (8, 11, 3, 1)$
$66: P_{4501} = (20, 11, 3, 1)$
$67: P_{4515} = (2, 12, 3, 1)$
$68: P_{4536} = (23, 12, 3, 1)$
$69: P_{4579} = (2, 14, 3, 1)$
$70: P_{4594} = (17, 14, 3, 1)$
$71: P_{4621} = (12, 15, 3, 1)$
$72: P_{4637} = (28, 15, 3, 1)$
$73: P_{4750} = (13, 19, 3, 1)$
$74: P_{4765} = (28, 19, 3, 1)$
$75: P_{4812} = (11, 21, 3, 1)$
$76: P_{4817} = (16, 21, 3, 1)$
$77: P_{5016} = (23, 27, 3, 1)$
$78: P_{5023} = (30, 27, 3, 1)$
$79: P_{5046} = (21, 28, 3, 1)$
$80: P_{5100} = (11, 30, 3, 1)$
$81: P_{5102} = (13, 30, 3, 1)$
$82: P_{5138} = (17, 31, 3, 1)$
$83: P_{5141} = (20, 31, 3, 1)$
$84: P_{5238} = (21, 2, 4, 1)$
$85: P_{5245} = (28, 2, 4, 1)$
$86: P_{5330} = (17, 5, 4, 1)$
$87: P_{5388} = (11, 7, 4, 1)$
$88: P_{5399} = (22, 7, 4, 1)$
$89: P_{5434} = (25, 8, 4, 1)$
$90: P_{5438} = (29, 8, 4, 1)$
$91: P_{5459} = (18, 9, 4, 1)$
$92: P_{5521} = (16, 11, 4, 1)$
$93: P_{5529} = (24, 11, 4, 1)$
$94: P_{5548} = (11, 12, 4, 1)$
$95: P_{5568} = (31, 12, 4, 1)$
$96: P_{5719} = (22, 17, 4, 1)$
$97: P_{5722} = (25, 17, 4, 1)$
$98: P_{5785} = (24, 19, 4, 1)$
$99: P_{5792} = (31, 19, 4, 1)$
$100: P_{5803} = (10, 20, 4, 1)$
$101: P_{5810} = (17, 20, 4, 1)$
$102: P_{5827} = (2, 21, 4, 1)$
$103: P_{5854} = (29, 21, 4, 1)$
$104: P_{5891} = (2, 23, 4, 1)$
$105: P_{5910} = (21, 23, 4, 1)$
$106: P_{6033} = (16, 27, 4, 1)$
$107: P_{6035} = (18, 27, 4, 1)$

$108: P_{6123} = (10, 30, 4, 1)$
$109: P_{6141} = (28, 30, 4, 1)$
$110: P_{6260} = (19, 2, 5, 1)$
$111: P_{6265} = (24, 2, 5, 1)$
$112: P_{6321} = (16, 4, 5, 1)$
$113: P_{6347} = (10, 5, 5, 1)$
$114: P_{6363} = (26, 5, 5, 1)$
$115: P_{6456} = (23, 8, 5, 1)$
$116: P_{6460} = (27, 8, 5, 1)$
$117: P_{6557} = (28, 11, 5, 1)$
$118: P_{6560} = (31, 11, 5, 1)$
$119: P_{6667} = (10, 15, 5, 1)$
$120: P_{6686} = (29, 15, 5, 1)$
$121: P_{6734} = (13, 17, 5, 1)$
$122: P_{6740} = (19, 17, 5, 1)$
$123: P_{6765} = (12, 18, 5, 1)$
$124: P_{6782} = (29, 18, 5, 1)$
$125: P_{6800} = (15, 19, 5, 1)$
$126: P_{6812} = (27, 19, 5, 1)$
$127: P_{6833} = (16, 20, 5, 1)$
$128: P_{6848} = (31, 20, 5, 1)$
$129: P_{6941} = (28, 23, 5, 1)$
$130: P_{7013} = (4, 26, 5, 1)$
$131: P_{7033} = (24, 26, 5, 1)$
$132: P_{7086} = (13, 28, 5, 1)$
$133: P_{7088} = (15, 28, 5, 1)$
$134: P_{7141} = (4, 30, 5, 1)$
$135: P_{7149} = (12, 30, 5, 1)$
$136: P_{7192} = (23, 31, 5, 1)$
$137: P_{7195} = (26, 31, 5, 1)$
$138: P_{7315} = (18, 3, 6, 1)$
$139: P_{7322} = (25, 3, 6, 1)$
$140: P_{7339} = (10, 4, 6, 1)$
$141: P_{7348} = (19, 4, 6, 1)$
$142: P_{7369} = (8, 5, 6, 1)$
$143: P_{7384} = (23, 5, 6, 1)$
$144: P_{7446} = (21, 7, 6, 1)$
$145: P_{7557} = (4, 11, 6, 1)$
$146: P_{7579} = (26, 11, 6, 1)$
$147: P_{7605} = (20, 12, 6, 1)$
$148: P_{7609} = (24, 12, 6, 1)$
$149: P_{7619} = (2, 13, 6, 1)$
$150: P_{7625} = (8, 13, 6, 1)$
$151: P_{7659} = (10, 14, 6, 1)$
$152: P_{7683} = (2, 15, 6, 1)$
$153: P_{7685} = (4, 15, 6, 1)$
$154: P_{7763} = (18, 17, 6, 1)$
$155: P_{7771} = (26, 17, 6, 1)$
$156: P_{7798} = (21, 18, 6, 1)$
$157: P_{7800} = (23, 18, 6, 1)$
$158: P_{7855} = (14, 20, 6, 1)$
$159: P_{7865} = (24, 20, 6, 1)$
$160: P_{7952} = (15, 23, 6, 1)$
$161: P_{7956} = (19, 23, 6, 1)$
$162: P_{7984} = (15, 24, 6, 1)$
$163: P_{7989} = (20, 24, 6, 1)$
$164: P_{8047} = (14, 26, 6, 1)$
$165: P_{8058} = (25, 26, 6, 1)$
$166: P_{8307} = (18, 2, 7, 1)$
$167: P_{8318} = (29, 2, 7, 1)$
$168: P_{8437} = (20, 6, 7, 1)$
$169: P_{8462} = (13, 7, 7, 1)$
$170: P_{8474} = (25, 7, 7, 1)$
$171: P_{8558} = (13, 10, 7, 1)$
$172: P_{8576} = (31, 10, 7, 1)$
$173: P_{8626} = (17, 12, 7, 1)$
$174: P_{8724} = (19, 15, 7, 1)$
$175: P_{8731} = (26, 15, 7, 1)$
$176: P_{8749} = (12, 16, 7, 1)$
$177: P_{8755} = (18, 16, 7, 1)$
$178: P_{8805} = (4, 18, 7, 1)$
$179: P_{8821} = (20, 18, 7, 1)$
$180: P_{8874} = (9, 20, 7, 1)$
$181: P_{8876} = (11, 20, 7, 1)$
$182: P_{8923} = (26, 21, 7, 1)$
$183: P_{8928} = (31, 21, 7, 1)$
$184: P_{8933} = (4, 22, 7, 1)$
$185: P_{8937} = (8, 22, 7, 1)$
$186: P_{9133} = (12, 28, 7, 1)$
$187: P_{9140} = (19, 28, 7, 1)$
$188: P_{9162} = (9, 29, 7, 1)$
$189: P_{9170} = (17, 29, 7, 1)$
$190: P_{9193} = (8, 30, 7, 1)$
$191: P_{9210} = (25, 30, 7, 1)$
$192: P_{9228} = (11, 31, 7, 1)$
$193: P_{9246} = (29, 31, 7, 1)$
$194: P_{9324} = (11, 2, 8, 1)$
$195: P_{9339} = (26, 2, 8, 1)$
$196: P_{9411} = (2, 5, 8, 1)$
$197: P_{9423} = (14, 5, 8, 1)$
$198: P_{9453} = (12, 6, 8, 1)$
$199: P_{9465} = (24, 6, 8, 1)$
$200: P_{9475} = (2, 7, 8, 1)$
$201: P_{9503} = (30, 7, 8, 1)$
$202: P_{9548} = (11, 9, 8, 1)$
$203: P_{9581} = (12, 10, 8, 1)$
$204: P_{9592} = (23, 10, 8, 1)$
$205: P_{9615} = (14, 11, 8, 1)$
$206: P_{9630} = (29, 11, 8, 1)$
$207: P_{9651} = (18, 12, 8, 1)$
$208: P_{9661} = (28, 12, 8, 1)$
$209: P_{9770} = (9, 16, 8, 1)$
$210: P_{9789} = (28, 16, 8, 1)$
$211: P_{9982} = (29, 22, 8, 1)$
$212: P_{10022} = (5, 24, 8, 1)$
$213: P_{10043} = (26, 24, 8, 1)$
$214: P_{10058} = (9, 25, 8, 1)$
$215: P_{10079} = (30, 25, 8, 1)$

$216: P_{10182} = (5, 29, 8, 1)$
$217: P_{10200} = (23, 29, 8, 1)$
$218: P_{10227} = (18, 30, 8, 1)$
$219: P_{10233} = (24, 30, 8, 1)$
$220: P_{10347} = (10, 2, 9, 1)$
$221: P_{10362} = (25, 2, 9, 1)$
$222: P_{10382} = (13, 3, 9, 1)$
$223: P_{10392} = (23, 3, 9, 1)$
$224: P_{10403} = (2, 4, 9, 1)$
$225: P_{10467} = (2, 6, 9, 1)$
$226: P_{10481} = (16, 6, 9, 1)$
$227: P_{10505} = (8, 7, 9, 1)$
$228: P_{10516} = (19, 7, 9, 1)$
$229: P_{10539} = (10, 8, 9, 1)$
$230: P_{10734} = (13, 14, 9, 1)$
$231: P_{10750} = (29, 14, 9, 1)$
$232: P_{10761} = (8, 15, 9, 1)$
$233: P_{10770} = (17, 15, 9, 1)$
$234: P_{10788} = (3, 16, 9, 1)$
$235: P_{10791} = (6, 16, 9, 1)$
$236: P_{10884} = (3, 19, 9, 1)$
$237: P_{10910} = (29, 19, 9, 1)$
$238: P_{10932} = (19, 20, 9, 1)$
$239: P_{10936} = (23, 20, 9, 1)$
$240: P_{10983} = (6, 22, 9, 1)$
$241: P_{10993} = (16, 22, 9, 1)$
$242: P_{11142} = (5, 27, 9, 1)$
$243: P_{11162} = (25, 27, 9, 1)$
$244: P_{11238} = (5, 30, 9, 1)$
$245: P_{11250} = (17, 30, 9, 1)$
$246: P_{11428} = (3, 4, 10, 1)$
$247: P_{11440} = (15, 4, 10, 1)$
$248: P_{11500} = (11, 6, 10, 1)$
$249: P_{11508} = (19, 6, 10, 1)$
$250: P_{11524} = (3, 7, 10, 1)$
$251: P_{11538} = (17, 7, 10, 1)$
$252: P_{11664} = (15, 11, 10, 1)$
$253: P_{11724} = (11, 13, 10, 1)$
$254: P_{11736} = (23, 13, 10, 1)$
$255: P_{11769} = (24, 14, 10, 1)$
$256: P_{11771} = (26, 14, 10, 1)$
$257: P_{11799} = (22, 15, 10, 1)$
$258: P_{11807} = (30, 15, 10, 1)$
$259: P_{11845} = (4, 17, 10, 1)$
$260: P_{11871} = (30, 17, 10, 1)$
$261: P_{11912} = (7, 19, 10, 1)$
$262: P_{11914} = (9, 19, 10, 1)$
$263: P_{11944} = (7, 20, 10, 1)$
$264: P_{11963} = (26, 20, 10, 1)$
$265: P_{11973} = (4, 21, 10, 1)$
$266: P_{11988} = (19, 21, 10, 1)$
$267: P_{12018} = (17, 22, 10, 1)$
$268: P_{12025} = (24, 22, 10, 1)$
$269: P_{12119} = (22, 25, 10, 1)$
$270: P_{12138} = (9, 26, 10, 1)$
$271: P_{12152} = (23, 26, 10, 1)$
$272: P_{12391} = (6, 2, 11, 1)$
$273: P_{12402} = (17, 2, 11, 1)$
$274: P_{12455} = (6, 4, 11, 1)$
$275: P_{12463} = (14, 4, 11, 1)$
$276: P_{12505} = (24, 5, 11, 1)$
$277: P_{12508} = (27, 5, 11, 1)$
$278: P_{12582} = (5, 8, 11, 1)$
$279: P_{12599} = (22, 8, 11, 1)$
$280: P_{12655} = (14, 10, 11, 1)$
$281: P_{12742} = (5, 13, 11, 1)$
$282: P_{12757} = (20, 13, 11, 1)$
$283: P_{12837} = (4, 16, 11, 1)$
$284: P_{12941} = (12, 19, 11, 1)$
$285: P_{12946} = (17, 19, 11, 1)$
$286: P_{12965} = (4, 20, 11, 1)$
$287: P_{12974} = (13, 20, 11, 1)$
$288: P_{13001} = (8, 21, 11, 1)$
$289: P_{13003} = (10, 21, 11, 1)$
$290: P_{13134} = (13, 25, 11, 1)$
$291: P_{13141} = (20, 25, 11, 1)$
$292: P_{13257} = (8, 29, 11, 1)$
$293: P_{13273} = (24, 29, 11, 1)$
$294: P_{13303} = (22, 30, 11, 1)$
$295: P_{13308} = (27, 30, 11, 1)$
$296: P_{13323} = (10, 31, 11, 1)$
$297: P_{13325} = (12, 31, 11, 1)$
$298: P_{13518} = (13, 5, 12, 1)$
$299: P_{13526} = (21, 5, 12, 1)$
$300: P_{13593} = (24, 7, 12, 1)$
$301: P_{13604} = (3, 8, 12, 1)$
$302: P_{13614} = (13, 8, 12, 1)$
$303: P_{13638} = (5, 9, 12, 1)$
$304: P_{13640} = (7, 9, 12, 1)$
$305: P_{13669} = (4, 10, 12, 1)$
$306: P_{13683} = (18, 10, 12, 1)$
$307: P_{13700} = (3, 11, 12, 1)$
$308: P_{13722} = (25, 11, 12, 1)$
$309: P_{13734} = (5, 12, 12, 1)$
$310: P_{13759} = (30, 12, 12, 1)$
$311: P_{13788} = (27, 13, 12, 1)$
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$718: P_{29283} = (2, 18, 27, 1)$
$719: P_{29309} = (28, 18, 27, 1)$
$720: P_{29390} = (13, 21, 27, 1)$
$721: P_{29401} = (24, 21, 27, 1)$
$722: P_{29459} = (18, 23, 27, 1)$
$723: P_{29461} = (20, 23, 27, 1)$
$724: P_{29479} = (6, 24, 27, 1)$
$725: P_{29486} = (13, 24, 27, 1)$
$726: P_{29508} = (3, 25, 27, 1)$
$727: P_{29524} = (19, 25, 27, 1)$
$728: P_{29540} = (3, 26, 27, 1)$
$729: P_{29671} = (6, 30, 27, 1)$
$730: P_{29694} = (29, 30, 27, 1)$
$731: P_{29712} = (15, 31, 27, 1)$
$732: P_{29851} = (26, 3, 28, 1)$
$733: P_{29934} = (13, 6, 28, 1)$
$734: P_{29935} = (14, 6, 28, 1)$
$735: P_{29999} = (14, 8, 28, 1)$
$736: P_{30005} = (20, 8, 28, 1)$
$737: P_{30042} = (25, 9, 28, 1)$
$738: P_{30048} = (31, 9, 28, 1)$
$739: P_{30094} = (13, 11, 28, 1)$
$740: P_{30103} = (22, 11, 28, 1)$
$741: P_{30252} = (11, 16, 28, 1)$
$742: P_{30266} = (25, 16, 28, 1)$
$743: P_{30310} = (5, 18, 28, 1)$
$744: P_{30315} = (10, 18, 28, 1)$
$745: P_{30448} = (15, 22, 28, 1)$
$746: P_{30464} = (31, 22, 28, 1)$
$747: P_{30470} = (5, 23, 28, 1)$
$748: P_{30474} = (9, 23, 28, 1)$
$749: P_{30500} = (3, 24, 28, 1)$
$750: P_{30507} = (10, 24, 28, 1)$
$751: P_{30544} = (15, 25, 28, 1)$
$752: P_{30555} = (26, 25, 28, 1)$
$753: P_{30596} = (3, 27, 28, 1)$
$754: P_{30604} = (11, 27, 28, 1)$
$755: P_{30627} = (2, 28, 28, 1)$

$756: P_{30645} = (20, 28, 28, 1)$
$757: P_{30679} = (22, 29, 28, 1)$
$758: P_{30691} = (2, 30, 28, 1)$
$759: P_{30698} = (9, 30, 28, 1)$
$760: P_{30831} = (14, 2, 29, 1)$
$761: P_{30833} = (16, 2, 29, 1)$
$762: P_{30870} = (21, 3, 29, 1)$
$763: P_{30871} = (22, 3, 29, 1)$
$764: P_{30932} = (19, 5, 29, 1)$
$765: P_{30933} = (20, 5, 29, 1)$
$766: P_{30987} = (10, 7, 29, 1)$
$767: P_{30995} = (18, 7, 29, 1)$
$768: P_{31112} = (7, 11, 29, 1)$
$769: P_{31128} = (23, 11, 29, 1)$
$770: P_{31144} = (7, 12, 29, 1)$
$771: P_{31151} = (14, 12, 29, 1)$
$772: P_{31179} = (10, 13, 29, 1)$
$773: P_{31199} = (30, 13, 29, 1)$
$774: P_{31308} = (11, 17, 29, 1)$
$775: P_{31317} = (20, 17, 29, 1)$
$776: P_{31342} = (13, 18, 29, 1)$
$777: P_{31345} = (16, 18, 29, 1)$
$778: P_{31391} = (30, 19, 29, 1)$
$779: P_{31443} = (18, 21, 29, 1)$
$780: P_{31447} = (22, 21, 29, 1)$
$781: P_{31476} = (19, 22, 29, 1)$
$782: P_{31478} = (21, 22, 29, 1)$
$783: P_{31590} = (5, 26, 29, 1)$
$784: P_{31596} = (11, 26, 29, 1)$
$785: P_{31672} = (23, 28, 29, 1)$
$786: P_{31750} = (5, 31, 29, 1)$
$787: P_{31758} = (13, 31, 29, 1)$
$788: P_{31848} = (7, 2, 30, 1)$
$789: P_{31872} = (31, 2, 30, 1)$
$790: P_{31944} = (7, 5, 30, 1)$
$791: P_{31952} = (15, 5, 30, 1)$
$792: P_{31990} = (21, 6, 30, 1)$
$793: P_{31995} = (26, 6, 30, 1)$
$794: P_{32112} = (15, 10, 30, 1)$
$795: P_{32125} = (28, 10, 30, 1)$
$796: P_{32210} = (17, 13, 30, 1)$
$797: P_{32211} = (18, 13, 30, 1)$
$798: P_{32359} = (6, 18, 30, 1)$
$799: P_{32361} = (8, 18, 30, 1)$
$800: P_{32390} = (5, 19, 30, 1)$
$801: P_{32406} = (21, 19, 30, 1)$
$802: P_{32423} = (6, 20, 30, 1)$
$803: P_{32486} = (5, 22, 30, 1)$
$804: P_{32509} = (28, 22, 30, 1)$
$805: P_{32523} = (10, 23, 30, 1)$
$806: P_{32526} = (13, 23, 30, 1)$
$807: P_{32617} = (8, 26, 30, 1)$
$808: P_{32622} = (13, 26, 30, 1)$
$809: P_{32690} = (17, 28, 30, 1)$
$810: P_{32699} = (26, 28, 30, 1)$
$811: P_{32715} = (10, 29, 30, 1)$
$812: P_{32736} = (31, 29, 30, 1)$
$813: P_{32787} = (18, 31, 30, 1)$
$814: P_{32877} = (12, 2, 31, 1)$
$815: P_{32887} = (22, 2, 31, 1)$
$816: P_{33061} = (4, 8, 31, 1)$
$817: P_{33063} = (6, 8, 31, 1)$
$818: P_{33092} = (3, 9, 31, 1)$
$819: P_{33119} = (30, 9, 31, 1)$
$820: P_{33124} = (3, 10, 31, 1)$
$821: P_{33147} = (26, 10, 31, 1)$
$822: P_{33189} = (4, 12, 31, 1)$
$823: P_{33206} = (21, 12, 31, 1)$
$824: P_{33236} = (19, 13, 31, 1)$
$825: P_{33246} = (29, 13, 31, 1)$
$826: P_{33255} = (6, 14, 31, 1)$
$827: P_{33261} = (12, 14, 31, 1)$
$828: P_{33339} = (26, 16, 31, 1)$
$829: P_{33342} = (29, 16, 31, 1)$
$830: P_{33443} = (2, 20, 31, 1)$
$831: P_{33463} = (22, 20, 31, 1)$
$832: P_{33507} = (2, 22, 31, 1)$
$833: P_{33518} = (13, 22, 31, 1)$
$834: P_{33551} = (14, 23, 31, 1)$
$835: P_{33567} = (30, 23, 31, 1)$
$836: P_{33615} = (14, 25, 31, 1)$
$837: P_{33622} = (21, 25, 31, 1)$
$838: P_{33678} = (13, 27, 31, 1)$
$839: P_{33780} = (19, 30, 31, 1)$

Line Intersection Graph

	0 1 2 3 4 5 6 7 8 9
0	0 1 1 1 1 0 0 0 0 0
1	1 0 1 0 0 1 1 1 1 0
2	1 1 0 0 0 1 1 1 0 1
3	1 0 0 0 1 1 0 0 1 1
4	1 0 0 1 0 0 1 1 0 0
5	0 1 1 1 0 0 1 1 0 0
6	0 1 1 0 1 1 0 1 1 0
7	0 1 1 0 1 1 1 0 0 1
8	0 1 0 1 0 0 1 0 0 1
9	0 0 1 1 0 0 0 1 1 0

Neighbor sets in the line intersection graph:
Line 0 intersects

Line	ℓ_1	ℓ_2	ℓ_3	ℓ_4
in point	P_0	P_5	P_1	P_1

Line 1 intersects

Line	ℓ_0	ℓ_2	ℓ_5	ℓ_6	ℓ_7	ℓ_8
in point	P_0	P_2	P_2	P_2	P_2	P_{36}

Line 2 intersects

Line	ℓ_0	ℓ_1	ℓ_5	ℓ_6	ℓ_7	ℓ_9
in point	P_5	P_2	P_2	P_2	P_2	P_{68}

Line 3 intersects

Line	ℓ_0	ℓ_4	ℓ_5	ℓ_8	ℓ_9
in point	P_1	P_1	P_3	P_{1090}	P_{1090}

Line 4 intersects

Line	ℓ_0	ℓ_3	ℓ_6	ℓ_7
in point	P_1	P_1	P_{1091}	P_{1059}

Line 5 intersects

Line	ℓ_1	ℓ_2	ℓ_3	ℓ_6	ℓ_7
in point	P_2	P_2	P_3	P_2	P_2

Line 6 intersects

Line	ℓ_1	ℓ_2	ℓ_4	ℓ_5	ℓ_7	ℓ_8
in point	P_2	P_2	P_{1091}	P_2	P_2	P_4

Line 7 intersects

Line	ℓ_1	ℓ_2	ℓ_4	ℓ_5	ℓ_6	ℓ_9
in point	P_2	P_2	P_{1059}	P_2	P_2	P_{2083}

Line 8 intersects

Line	ℓ_1	ℓ_3	ℓ_6	ℓ_9
in point	P_{36}	P_{1090}	P_4	P_{1090}

Line 9 intersects

Line	ℓ_2	ℓ_3	ℓ_7	ℓ_8
in point	P_{68}	P_{1090}	P_{2083}	P_{1090}

The surface has 1153 points:
Too many to print.