

Rank-74275 over GF(64)

January 15, 2021

The equation

The equation of the surface is :

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

(0, 0, 0, 0, 0, 1, 0, 0, 0, 1, 0, 0, 0, 1, 0, 0, 0)

The point rank of the equation over GF(64) is -2130440123

General information

| | |
|----------------------------|-----------------------------|
| Number of lines | 6 |
| Number of points | 4289 |
| Number of singular points | 1 |
| Number of Eckardt points | 0 |
| Number of double points | 4 |
| Number of single points | 378 |
| Number of points off lines | 3906 |
| Number of Hesse planes | 0 |
| Number of axes | 0 |
| Type of points on lines | 65^6 |
| Type of lines on points | $4, 2^4, 1^{378}, 0^{3906}$ |

Singular Points

The surface has 1 singular points:

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

The 6 Lines

The lines and their Pluecker coordinates are:

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

$$\begin{aligned}
\ell_1 &= \begin{bmatrix} 1 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{8257} = \begin{bmatrix} 1 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{8257} = \mathbf{Pl}(0, 0, 1, 0, 0, 1)_{270528} \\
\ell_2 &= \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{17043456} = \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{17043456} = \mathbf{Pl}(0, 0, 0, 0, 0, 1)_{270401} \\
\ell_3 &= \begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{17047616} = \begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{17047616} = \mathbf{Pl}(0, 1, 0, 0, 0, 0)_1 \\
\ell_4 &= \begin{bmatrix} 1 & 1 & 0 & 1 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{274561} = \begin{bmatrix} 1 & 1 & 0 & 1 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{274561} = \mathbf{Pl}(0, 1, 1, 0, 0, 1)_{270592} \\
\ell_5 &= \begin{bmatrix} 1 & 0 & 1 & 1 \\ 0 & 1 & 1 & 0 \end{bmatrix}_{270466} = \begin{bmatrix} 1 & 0 & 1 & 1 \\ 0 & 1 & 1 & 0 \end{bmatrix}_{270466} = \mathbf{Pl}(1, 1, 1, 1, 0, 1)_{286530}
\end{aligned}$$

Rank of lines: (0, 8257, 17043456, 17047616, 274561, 270466)

Rank of points on Klein quadric: (0, 270528, 270401, 1, 270592, 286530)

Eckardt Points

The surface has 0 Eckardt points:

Double Points

The surface has 4 Double points:

The double points on the surface are:

$$P_5 = (1, 1, 0, 0) = \ell_0 \cap \ell_1$$

$$P_1 = (0, 1, 0, 0) = \ell_0 \cap \ell_2$$

$$P_{131} = (0, 1, 1, 0) = \ell_2 \cap \ell_5$$

$$P_{4227} = (1, 1, 0, 1) = \ell_4 \cap \ell_5$$

Single Points

The surface has 378 single points:

The single points on the surface are:

- 0 : $P_0 = (1, 0, 0, 0)$ lies on line ℓ_0
- 1 : $P_3 = (0, 0, 0, 1)$ lies on line ℓ_3
- 2 : $P_4 = (1, 1, 1, 1)$ lies on line ℓ_4
- 3 : $P_6 = (2, 1, 0, 0)$ lies on line ℓ_0
- 4 : $P_7 = (3, 1, 0, 0)$ lies on line ℓ_0
- 5 : $P_8 = (4, 1, 0, 0)$ lies on line ℓ_0
- 6 : $P_9 = (5, 1, 0, 0)$ lies on line ℓ_0
- 7 : $P_{10} = (6, 1, 0, 0)$ lies on line ℓ_0
- 8 : $P_{11} = (7, 1, 0, 0)$ lies on line ℓ_0
- 9 : $P_{12} = (8, 1, 0, 0)$ lies on line ℓ_0
- 10 : $P_{13} = (9, 1, 0, 0)$ lies on line ℓ_0
- 11 : $P_{14} = (10, 1, 0, 0)$ lies on line ℓ_0
- 12 : $P_{15} = (11, 1, 0, 0)$ lies on line ℓ_0
- 13 : $P_{16} = (12, 1, 0, 0)$ lies on line ℓ_0
- 14 : $P_{17} = (13, 1, 0, 0)$ lies on line ℓ_0
- 15 : $P_{18} = (14, 1, 0, 0)$ lies on line ℓ_0
- 16 : $P_{19} = (15, 1, 0, 0)$ lies on line ℓ_0

- 17 : $P_{20} = (16, 1, 0, 0)$ lies on line ℓ_0
- 18 : $P_{21} = (17, 1, 0, 0)$ lies on line ℓ_0
- 19 : $P_{22} = (18, 1, 0, 0)$ lies on line ℓ_0
- 20 : $P_{23} = (19, 1, 0, 0)$ lies on line ℓ_0
- 21 : $P_{24} = (20, 1, 0, 0)$ lies on line ℓ_0
- 22 : $P_{25} = (21, 1, 0, 0)$ lies on line ℓ_0
- 23 : $P_{26} = (22, 1, 0, 0)$ lies on line ℓ_0
- 24 : $P_{27} = (23, 1, 0, 0)$ lies on line ℓ_0
- 25 : $P_{28} = (24, 1, 0, 0)$ lies on line ℓ_0
- 26 : $P_{29} = (25, 1, 0, 0)$ lies on line ℓ_0
- 27 : $P_{30} = (26, 1, 0, 0)$ lies on line ℓ_0
- 28 : $P_{31} = (27, 1, 0, 0)$ lies on line ℓ_0
- 29 : $P_{32} = (28, 1, 0, 0)$ lies on line ℓ_0
- 30 : $P_{33} = (29, 1, 0, 0)$ lies on line ℓ_0
- 31 : $P_{34} = (30, 1, 0, 0)$ lies on line ℓ_0
- 32 : $P_{35} = (31, 1, 0, 0)$ lies on line ℓ_0
- 33 : $P_{36} = (32, 1, 0, 0)$ lies on line ℓ_0

34 : $P_{37} = (33, 1, 0, 0)$ lies on line ℓ_0
 35 : $P_{38} = (34, 1, 0, 0)$ lies on line ℓ_0
 36 : $P_{39} = (35, 1, 0, 0)$ lies on line ℓ_0
 37 : $P_{40} = (36, 1, 0, 0)$ lies on line ℓ_0
 38 : $P_{41} = (37, 1, 0, 0)$ lies on line ℓ_0
 39 : $P_{42} = (38, 1, 0, 0)$ lies on line ℓ_0
 40 : $P_{43} = (39, 1, 0, 0)$ lies on line ℓ_0
 41 : $P_{44} = (40, 1, 0, 0)$ lies on line ℓ_0
 42 : $P_{45} = (41, 1, 0, 0)$ lies on line ℓ_0
 43 : $P_{46} = (42, 1, 0, 0)$ lies on line ℓ_0
 44 : $P_{47} = (43, 1, 0, 0)$ lies on line ℓ_0
 45 : $P_{48} = (44, 1, 0, 0)$ lies on line ℓ_0
 46 : $P_{49} = (45, 1, 0, 0)$ lies on line ℓ_0
 47 : $P_{50} = (46, 1, 0, 0)$ lies on line ℓ_0
 48 : $P_{51} = (47, 1, 0, 0)$ lies on line ℓ_0
 49 : $P_{52} = (48, 1, 0, 0)$ lies on line ℓ_0
 50 : $P_{53} = (49, 1, 0, 0)$ lies on line ℓ_0
 51 : $P_{54} = (50, 1, 0, 0)$ lies on line ℓ_0
 52 : $P_{55} = (51, 1, 0, 0)$ lies on line ℓ_0
 53 : $P_{56} = (52, 1, 0, 0)$ lies on line ℓ_0
 54 : $P_{57} = (53, 1, 0, 0)$ lies on line ℓ_0
 55 : $P_{58} = (54, 1, 0, 0)$ lies on line ℓ_0
 56 : $P_{59} = (55, 1, 0, 0)$ lies on line ℓ_0
 57 : $P_{60} = (56, 1, 0, 0)$ lies on line ℓ_0
 58 : $P_{61} = (57, 1, 0, 0)$ lies on line ℓ_0
 59 : $P_{62} = (58, 1, 0, 0)$ lies on line ℓ_0
 60 : $P_{63} = (59, 1, 0, 0)$ lies on line ℓ_0
 61 : $P_{64} = (60, 1, 0, 0)$ lies on line ℓ_0
 62 : $P_{65} = (61, 1, 0, 0)$ lies on line ℓ_0
 63 : $P_{66} = (62, 1, 0, 0)$ lies on line ℓ_0
 64 : $P_{67} = (63, 1, 0, 0)$ lies on line ℓ_0
 65 : $P_{132} = (1, 1, 1, 0)$ lies on line ℓ_1
 66 : $P_{195} = (0, 2, 1, 0)$ lies on line ℓ_2
 67 : $P_{197} = (2, 2, 1, 0)$ lies on line ℓ_1
 68 : $P_{259} = (0, 3, 1, 0)$ lies on line ℓ_2
 69 : $P_{262} = (3, 3, 1, 0)$ lies on line ℓ_1
 70 : $P_{323} = (0, 4, 1, 0)$ lies on line ℓ_2
 71 : $P_{327} = (4, 4, 1, 0)$ lies on line ℓ_1
 72 : $P_{387} = (0, 5, 1, 0)$ lies on line ℓ_2
 73 : $P_{392} = (5, 5, 1, 0)$ lies on line ℓ_1
 74 : $P_{451} = (0, 6, 1, 0)$ lies on line ℓ_2
 75 : $P_{457} = (6, 6, 1, 0)$ lies on line ℓ_1
 76 : $P_{515} = (0, 7, 1, 0)$ lies on line ℓ_2
 77 : $P_{522} = (7, 7, 1, 0)$ lies on line ℓ_1
 78 : $P_{579} = (0, 8, 1, 0)$ lies on line ℓ_2
 79 : $P_{587} = (8, 8, 1, 0)$ lies on line ℓ_1
 80 : $P_{643} = (0, 9, 1, 0)$ lies on line ℓ_2
 81 : $P_{652} = (9, 9, 1, 0)$ lies on line ℓ_1
 82 : $P_{707} = (0, 10, 1, 0)$ lies on line ℓ_2
 83 : $P_{717} = (10, 10, 1, 0)$ lies on line ℓ_1
 84 : $P_{771} = (0, 11, 1, 0)$ lies on line ℓ_2
 85 : $P_{782} = (11, 11, 1, 0)$ lies on line ℓ_1
 86 : $P_{835} = (0, 12, 1, 0)$ lies on line ℓ_2
 87 : $P_{847} = (12, 12, 1, 0)$ lies on line ℓ_1

88 : $P_{899} = (0, 13, 1, 0)$ lies on line ℓ_2
 89 : $P_{912} = (13, 13, 1, 0)$ lies on line ℓ_1
 90 : $P_{963} = (0, 14, 1, 0)$ lies on line ℓ_2
 91 : $P_{977} = (14, 14, 1, 0)$ lies on line ℓ_1
 92 : $P_{1027} = (0, 15, 1, 0)$ lies on line ℓ_2
 93 : $P_{1042} = (15, 15, 1, 0)$ lies on line ℓ_1
 94 : $P_{1091} = (0, 16, 1, 0)$ lies on line ℓ_2
 95 : $P_{1107} = (16, 16, 1, 0)$ lies on line ℓ_1
 96 : $P_{1155} = (0, 17, 1, 0)$ lies on line ℓ_2
 97 : $P_{1172} = (17, 17, 1, 0)$ lies on line ℓ_1
 98 : $P_{1219} = (0, 18, 1, 0)$ lies on line ℓ_2
 99 : $P_{1237} = (18, 18, 1, 0)$ lies on line ℓ_1
 100 : $P_{1283} = (0, 19, 1, 0)$ lies on line ℓ_2
 101 : $P_{1302} = (19, 19, 1, 0)$ lies on line ℓ_1
 102 : $P_{1347} = (0, 20, 1, 0)$ lies on line ℓ_2
 103 : $P_{1367} = (20, 20, 1, 0)$ lies on line ℓ_1
 104 : $P_{1411} = (0, 21, 1, 0)$ lies on line ℓ_2
 105 : $P_{1432} = (21, 21, 1, 0)$ lies on line ℓ_1
 106 : $P_{1475} = (0, 22, 1, 0)$ lies on line ℓ_2
 107 : $P_{1497} = (22, 22, 1, 0)$ lies on line ℓ_1
 108 : $P_{1539} = (0, 23, 1, 0)$ lies on line ℓ_2
 109 : $P_{1562} = (23, 23, 1, 0)$ lies on line ℓ_1
 110 : $P_{1603} = (0, 24, 1, 0)$ lies on line ℓ_2
 111 : $P_{1627} = (24, 24, 1, 0)$ lies on line ℓ_1
 112 : $P_{1667} = (0, 25, 1, 0)$ lies on line ℓ_2
 113 : $P_{1692} = (25, 25, 1, 0)$ lies on line ℓ_1
 114 : $P_{1731} = (0, 26, 1, 0)$ lies on line ℓ_2
 115 : $P_{1757} = (26, 26, 1, 0)$ lies on line ℓ_1
 116 : $P_{1795} = (0, 27, 1, 0)$ lies on line ℓ_2
 117 : $P_{1822} = (27, 27, 1, 0)$ lies on line ℓ_1
 118 : $P_{1859} = (0, 28, 1, 0)$ lies on line ℓ_2
 119 : $P_{1887} = (28, 28, 1, 0)$ lies on line ℓ_1
 120 : $P_{1923} = (0, 29, 1, 0)$ lies on line ℓ_2
 121 : $P_{1952} = (29, 29, 1, 0)$ lies on line ℓ_1
 122 : $P_{1987} = (0, 30, 1, 0)$ lies on line ℓ_2
 123 : $P_{2017} = (30, 30, 1, 0)$ lies on line ℓ_1
 124 : $P_{2051} = (0, 31, 1, 0)$ lies on line ℓ_2
 125 : $P_{2082} = (31, 31, 1, 0)$ lies on line ℓ_1
 126 : $P_{2115} = (0, 32, 1, 0)$ lies on line ℓ_2
 127 : $P_{2147} = (32, 32, 1, 0)$ lies on line ℓ_1
 128 : $P_{2179} = (0, 33, 1, 0)$ lies on line ℓ_2
 129 : $P_{2212} = (33, 33, 1, 0)$ lies on line ℓ_1
 130 : $P_{2243} = (0, 34, 1, 0)$ lies on line ℓ_2
 131 : $P_{2277} = (34, 34, 1, 0)$ lies on line ℓ_1
 132 : $P_{2307} = (0, 35, 1, 0)$ lies on line ℓ_2
 133 : $P_{2342} = (35, 35, 1, 0)$ lies on line ℓ_1
 134 : $P_{2371} = (0, 36, 1, 0)$ lies on line ℓ_2
 135 : $P_{2407} = (36, 36, 1, 0)$ lies on line ℓ_1
 136 : $P_{2435} = (0, 37, 1, 0)$ lies on line ℓ_2
 137 : $P_{2472} = (37, 37, 1, 0)$ lies on line ℓ_1
 138 : $P_{2499} = (0, 38, 1, 0)$ lies on line ℓ_2
 139 : $P_{2537} = (38, 38, 1, 0)$ lies on line ℓ_1
 140 : $P_{2563} = (0, 39, 1, 0)$ lies on line ℓ_2
 141 : $P_{2602} = (39, 39, 1, 0)$ lies on line ℓ_1

142 : $P_{2627} = (0, 40, 1, 0)$ lies on line ℓ_2
143 : $P_{2667} = (40, 40, 1, 0)$ lies on line ℓ_1
144 : $P_{2691} = (0, 41, 1, 0)$ lies on line ℓ_2
145 : $P_{2732} = (41, 41, 1, 0)$ lies on line ℓ_1
146 : $P_{2755} = (0, 42, 1, 0)$ lies on line ℓ_2
147 : $P_{2797} = (42, 42, 1, 0)$ lies on line ℓ_1
148 : $P_{2819} = (0, 43, 1, 0)$ lies on line ℓ_2
149 : $P_{2862} = (43, 43, 1, 0)$ lies on line ℓ_1
150 : $P_{2883} = (0, 44, 1, 0)$ lies on line ℓ_2
151 : $P_{2927} = (44, 44, 1, 0)$ lies on line ℓ_1
152 : $P_{2947} = (0, 45, 1, 0)$ lies on line ℓ_2
153 : $P_{2992} = (45, 45, 1, 0)$ lies on line ℓ_1
154 : $P_{3011} = (0, 46, 1, 0)$ lies on line ℓ_2
155 : $P_{3057} = (46, 46, 1, 0)$ lies on line ℓ_1
156 : $P_{3075} = (0, 47, 1, 0)$ lies on line ℓ_2
157 : $P_{3122} = (47, 47, 1, 0)$ lies on line ℓ_1
158 : $P_{3139} = (0, 48, 1, 0)$ lies on line ℓ_2
159 : $P_{3187} = (48, 48, 1, 0)$ lies on line ℓ_1
160 : $P_{3203} = (0, 49, 1, 0)$ lies on line ℓ_2
161 : $P_{3252} = (49, 49, 1, 0)$ lies on line ℓ_1
162 : $P_{3267} = (0, 50, 1, 0)$ lies on line ℓ_2
163 : $P_{3317} = (50, 50, 1, 0)$ lies on line ℓ_1
164 : $P_{3331} = (0, 51, 1, 0)$ lies on line ℓ_2
165 : $P_{3382} = (51, 51, 1, 0)$ lies on line ℓ_1
166 : $P_{3395} = (0, 52, 1, 0)$ lies on line ℓ_2
167 : $P_{3447} = (52, 52, 1, 0)$ lies on line ℓ_1
168 : $P_{3459} = (0, 53, 1, 0)$ lies on line ℓ_2
169 : $P_{3512} = (53, 53, 1, 0)$ lies on line ℓ_1
170 : $P_{3523} = (0, 54, 1, 0)$ lies on line ℓ_2
171 : $P_{3577} = (54, 54, 1, 0)$ lies on line ℓ_1
172 : $P_{3587} = (0, 55, 1, 0)$ lies on line ℓ_2
173 : $P_{3642} = (55, 55, 1, 0)$ lies on line ℓ_1
174 : $P_{3651} = (0, 56, 1, 0)$ lies on line ℓ_2
175 : $P_{3707} = (56, 56, 1, 0)$ lies on line ℓ_1
176 : $P_{3715} = (0, 57, 1, 0)$ lies on line ℓ_2
177 : $P_{3772} = (57, 57, 1, 0)$ lies on line ℓ_1
178 : $P_{3779} = (0, 58, 1, 0)$ lies on line ℓ_2
179 : $P_{3837} = (58, 58, 1, 0)$ lies on line ℓ_1
180 : $P_{3843} = (0, 59, 1, 0)$ lies on line ℓ_2
181 : $P_{3902} = (59, 59, 1, 0)$ lies on line ℓ_1
182 : $P_{3907} = (0, 60, 1, 0)$ lies on line ℓ_2
183 : $P_{3967} = (60, 60, 1, 0)$ lies on line ℓ_1
184 : $P_{3971} = (0, 61, 1, 0)$ lies on line ℓ_2
185 : $P_{4032} = (61, 61, 1, 0)$ lies on line ℓ_1
186 : $P_{4035} = (0, 62, 1, 0)$ lies on line ℓ_2
187 : $P_{4097} = (62, 62, 1, 0)$ lies on line ℓ_1
188 : $P_{4099} = (0, 63, 1, 0)$ lies on line ℓ_2
189 : $P_{4162} = (63, 63, 1, 0)$ lies on line ℓ_1
190 : $P_{8258} = (0, 0, 1, 1)$ lies on line ℓ_3
191 : $P_{8259} = (1, 0, 1, 1)$ lies on line ℓ_5
192 : $P_{12353} = (0, 0, 2, 1)$ lies on line ℓ_3
193 : $P_{12418} = (1, 1, 2, 1)$ lies on line ℓ_4
194 : $P_{12546} = (1, 3, 2, 1)$ lies on line ℓ_5
195 : $P_{16449} = (0, 0, 3, 1)$ lies on line ℓ_3
196 : $P_{16514} = (1, 1, 3, 1)$ lies on line ℓ_4
197 : $P_{16578} = (1, 2, 3, 1)$ lies on line ℓ_5
198 : $P_{20545} = (0, 0, 4, 1)$ lies on line ℓ_3
199 : $P_{20610} = (1, 1, 4, 1)$ lies on line ℓ_4
200 : $P_{20866} = (1, 5, 4, 1)$ lies on line ℓ_5
201 : $P_{24641} = (0, 0, 5, 1)$ lies on line ℓ_3
202 : $P_{24706} = (1, 1, 5, 1)$ lies on line ℓ_4
203 : $P_{24898} = (1, 4, 5, 1)$ lies on line ℓ_5
204 : $P_{28737} = (0, 0, 6, 1)$ lies on line ℓ_3
205 : $P_{28802} = (1, 1, 6, 1)$ lies on line ℓ_4
206 : $P_{29186} = (1, 7, 6, 1)$ lies on line ℓ_5
207 : $P_{32833} = (0, 0, 7, 1)$ lies on line ℓ_3
208 : $P_{32898} = (1, 1, 7, 1)$ lies on line ℓ_4
209 : $P_{33218} = (1, 6, 7, 1)$ lies on line ℓ_5
210 : $P_{36929} = (0, 0, 8, 1)$ lies on line ℓ_3
211 : $P_{36994} = (1, 1, 8, 1)$ lies on line ℓ_4
212 : $P_{37506} = (1, 9, 8, 1)$ lies on line ℓ_5
213 : $P_{41025} = (0, 0, 9, 1)$ lies on line ℓ_3
214 : $P_{41090} = (1, 1, 9, 1)$ lies on line ℓ_4
215 : $P_{41538} = (1, 8, 9, 1)$ lies on line ℓ_5
216 : $P_{45121} = (0, 0, 10, 1)$ lies on line ℓ_3
217 : $P_{45186} = (1, 1, 10, 1)$ lies on line ℓ_4
218 : $P_{45826} = (1, 11, 10, 1)$ lies on line ℓ_5
219 : $P_{49217} = (0, 0, 11, 1)$ lies on line ℓ_3
220 : $P_{49282} = (1, 1, 11, 1)$ lies on line ℓ_4
221 : $P_{49858} = (1, 10, 11, 1)$ lies on line ℓ_5
222 : $P_{53313} = (0, 0, 12, 1)$ lies on line ℓ_3
223 : $P_{53378} = (1, 1, 12, 1)$ lies on line ℓ_4
224 : $P_{54146} = (1, 13, 12, 1)$ lies on line ℓ_5
225 : $P_{57409} = (0, 0, 13, 1)$ lies on line ℓ_3
226 : $P_{57474} = (1, 1, 13, 1)$ lies on line ℓ_4
227 : $P_{58178} = (1, 12, 13, 1)$ lies on line ℓ_5
228 : $P_{61505} = (0, 0, 14, 1)$ lies on line ℓ_3
229 : $P_{61570} = (1, 1, 14, 1)$ lies on line ℓ_4
230 : $P_{62466} = (1, 15, 14, 1)$ lies on line ℓ_5
231 : $P_{65601} = (0, 0, 15, 1)$ lies on line ℓ_3
232 : $P_{65666} = (1, 1, 15, 1)$ lies on line ℓ_4
233 : $P_{66498} = (1, 14, 15, 1)$ lies on line ℓ_5
234 : $P_{69697} = (0, 0, 16, 1)$ lies on line ℓ_3
235 : $P_{69762} = (1, 1, 16, 1)$ lies on line ℓ_4
236 : $P_{70786} = (1, 17, 16, 1)$ lies on line ℓ_5
237 : $P_{73793} = (0, 0, 17, 1)$ lies on line ℓ_3
238 : $P_{73858} = (1, 1, 17, 1)$ lies on line ℓ_4
239 : $P_{74818} = (1, 16, 17, 1)$ lies on line ℓ_5
240 : $P_{77889} = (0, 0, 18, 1)$ lies on line ℓ_3
241 : $P_{77954} = (1, 1, 18, 1)$ lies on line ℓ_4
242 : $P_{79106} = (1, 19, 18, 1)$ lies on line ℓ_5
243 : $P_{81985} = (0, 0, 19, 1)$ lies on line ℓ_3
244 : $P_{82050} = (1, 1, 19, 1)$ lies on line ℓ_4
245 : $P_{83138} = (1, 18, 19, 1)$ lies on line ℓ_5
246 : $P_{86081} = (0, 0, 20, 1)$ lies on line ℓ_3
247 : $P_{86146} = (1, 1, 20, 1)$ lies on line ℓ_4
248 : $P_{87426} = (1, 21, 20, 1)$ lies on line ℓ_5
249 : $P_{90177} = (0, 0, 21, 1)$ lies on line ℓ_3

250 : $P_{90242} = (1, 1, 21, 1)$ lies on line ℓ_4
 251 : $P_{91458} = (1, 20, 21, 1)$ lies on line ℓ_5
 252 : $P_{94273} = (0, 0, 22, 1)$ lies on line ℓ_3
 253 : $P_{94338} = (1, 1, 22, 1)$ lies on line ℓ_4
 254 : $P_{95746} = (1, 23, 22, 1)$ lies on line ℓ_5
 255 : $P_{98369} = (0, 0, 23, 1)$ lies on line ℓ_3
 256 : $P_{98434} = (1, 1, 23, 1)$ lies on line ℓ_4
 257 : $P_{99778} = (1, 22, 23, 1)$ lies on line ℓ_5
 258 : $P_{102465} = (0, 0, 24, 1)$ lies on line ℓ_3
 259 : $P_{102530} = (1, 1, 24, 1)$ lies on line ℓ_4
 260 : $P_{104066} = (1, 25, 24, 1)$ lies on line ℓ_5
 261 : $P_{106561} = (0, 0, 25, 1)$ lies on line ℓ_3
 262 : $P_{106626} = (1, 1, 25, 1)$ lies on line ℓ_4
 263 : $P_{108098} = (1, 24, 25, 1)$ lies on line ℓ_5
 264 : $P_{110657} = (0, 0, 26, 1)$ lies on line ℓ_3
 265 : $P_{110722} = (1, 1, 26, 1)$ lies on line ℓ_4
 266 : $P_{112386} = (1, 27, 26, 1)$ lies on line ℓ_5
 267 : $P_{114753} = (0, 0, 27, 1)$ lies on line ℓ_3
 268 : $P_{114818} = (1, 1, 27, 1)$ lies on line ℓ_4
 269 : $P_{116418} = (1, 26, 27, 1)$ lies on line ℓ_5
 270 : $P_{118849} = (0, 0, 28, 1)$ lies on line ℓ_3
 271 : $P_{118914} = (1, 1, 28, 1)$ lies on line ℓ_4
 272 : $P_{120706} = (1, 29, 28, 1)$ lies on line ℓ_5
 273 : $P_{122945} = (0, 0, 29, 1)$ lies on line ℓ_3
 274 : $P_{123010} = (1, 1, 29, 1)$ lies on line ℓ_4
 275 : $P_{124738} = (1, 28, 29, 1)$ lies on line ℓ_5
 276 : $P_{127041} = (0, 0, 30, 1)$ lies on line ℓ_3
 277 : $P_{127106} = (1, 1, 30, 1)$ lies on line ℓ_4
 278 : $P_{129026} = (1, 31, 30, 1)$ lies on line ℓ_5
 279 : $P_{131137} = (0, 0, 31, 1)$ lies on line ℓ_3
 280 : $P_{131202} = (1, 1, 31, 1)$ lies on line ℓ_4
 281 : $P_{133058} = (1, 30, 31, 1)$ lies on line ℓ_5
 282 : $P_{135233} = (0, 0, 32, 1)$ lies on line ℓ_3
 283 : $P_{135298} = (1, 1, 32, 1)$ lies on line ℓ_4
 284 : $P_{137346} = (1, 33, 32, 1)$ lies on line ℓ_5
 285 : $P_{139329} = (0, 0, 33, 1)$ lies on line ℓ_3
 286 : $P_{139394} = (1, 1, 33, 1)$ lies on line ℓ_4
 287 : $P_{141378} = (1, 32, 33, 1)$ lies on line ℓ_5
 288 : $P_{143425} = (0, 0, 34, 1)$ lies on line ℓ_3
 289 : $P_{143490} = (1, 1, 34, 1)$ lies on line ℓ_4
 290 : $P_{145666} = (1, 35, 34, 1)$ lies on line ℓ_5
 291 : $P_{147521} = (0, 0, 35, 1)$ lies on line ℓ_3
 292 : $P_{147586} = (1, 1, 35, 1)$ lies on line ℓ_4
 293 : $P_{149698} = (1, 34, 35, 1)$ lies on line ℓ_5
 294 : $P_{151617} = (0, 0, 36, 1)$ lies on line ℓ_3
 295 : $P_{151682} = (1, 1, 36, 1)$ lies on line ℓ_4
 296 : $P_{153986} = (1, 37, 36, 1)$ lies on line ℓ_5
 297 : $P_{155713} = (0, 0, 37, 1)$ lies on line ℓ_3
 298 : $P_{155778} = (1, 1, 37, 1)$ lies on line ℓ_4
 299 : $P_{158018} = (1, 36, 37, 1)$ lies on line ℓ_5
 300 : $P_{159809} = (0, 0, 38, 1)$ lies on line ℓ_3
 301 : $P_{159874} = (1, 1, 38, 1)$ lies on line ℓ_4
 302 : $P_{162306} = (1, 39, 38, 1)$ lies on line ℓ_5
 303 : $P_{163905} = (0, 0, 39, 1)$ lies on line ℓ_3

304 : $P_{163970} = (1, 1, 39, 1)$ lies on line ℓ_4
 305 : $P_{166338} = (1, 38, 39, 1)$ lies on line ℓ_5
 306 : $P_{168001} = (0, 0, 40, 1)$ lies on line ℓ_3
 307 : $P_{168066} = (1, 1, 40, 1)$ lies on line ℓ_4
 308 : $P_{170626} = (1, 41, 40, 1)$ lies on line ℓ_5
 309 : $P_{172097} = (0, 0, 41, 1)$ lies on line ℓ_3
 310 : $P_{172162} = (1, 1, 41, 1)$ lies on line ℓ_4
 311 : $P_{174658} = (1, 40, 41, 1)$ lies on line ℓ_5
 312 : $P_{176193} = (0, 0, 42, 1)$ lies on line ℓ_3
 313 : $P_{176258} = (1, 1, 42, 1)$ lies on line ℓ_4
 314 : $P_{178946} = (1, 43, 42, 1)$ lies on line ℓ_5
 315 : $P_{180289} = (0, 0, 43, 1)$ lies on line ℓ_3
 316 : $P_{180354} = (1, 1, 43, 1)$ lies on line ℓ_4
 317 : $P_{182978} = (1, 42, 43, 1)$ lies on line ℓ_5
 318 : $P_{184385} = (0, 0, 44, 1)$ lies on line ℓ_3
 319 : $P_{184450} = (1, 1, 44, 1)$ lies on line ℓ_4
 320 : $P_{187266} = (1, 45, 44, 1)$ lies on line ℓ_5
 321 : $P_{188481} = (0, 0, 45, 1)$ lies on line ℓ_3
 322 : $P_{188546} = (1, 1, 45, 1)$ lies on line ℓ_4
 323 : $P_{191298} = (1, 44, 45, 1)$ lies on line ℓ_5
 324 : $P_{192577} = (0, 0, 46, 1)$ lies on line ℓ_3
 325 : $P_{192642} = (1, 1, 46, 1)$ lies on line ℓ_4
 326 : $P_{195586} = (1, 47, 46, 1)$ lies on line ℓ_5
 327 : $P_{196673} = (0, 0, 47, 1)$ lies on line ℓ_3
 328 : $P_{196738} = (1, 1, 47, 1)$ lies on line ℓ_4
 329 : $P_{199618} = (1, 46, 47, 1)$ lies on line ℓ_5
 330 : $P_{200769} = (0, 0, 48, 1)$ lies on line ℓ_3
 331 : $P_{200834} = (1, 1, 48, 1)$ lies on line ℓ_4
 332 : $P_{203906} = (1, 49, 48, 1)$ lies on line ℓ_5
 333 : $P_{204865} = (0, 0, 49, 1)$ lies on line ℓ_3
 334 : $P_{204930} = (1, 1, 49, 1)$ lies on line ℓ_4
 335 : $P_{207938} = (1, 48, 49, 1)$ lies on line ℓ_5
 336 : $P_{208961} = (0, 0, 50, 1)$ lies on line ℓ_3
 337 : $P_{209026} = (1, 1, 50, 1)$ lies on line ℓ_4
 338 : $P_{212226} = (1, 51, 50, 1)$ lies on line ℓ_5
 339 : $P_{213057} = (0, 0, 51, 1)$ lies on line ℓ_3
 340 : $P_{213122} = (1, 1, 51, 1)$ lies on line ℓ_4
 341 : $P_{216258} = (1, 50, 51, 1)$ lies on line ℓ_5
 342 : $P_{217153} = (0, 0, 52, 1)$ lies on line ℓ_3
 343 : $P_{217218} = (1, 1, 52, 1)$ lies on line ℓ_4
 344 : $P_{220546} = (1, 53, 52, 1)$ lies on line ℓ_5
 345 : $P_{221249} = (0, 0, 53, 1)$ lies on line ℓ_3
 346 : $P_{221314} = (1, 1, 53, 1)$ lies on line ℓ_4
 347 : $P_{224578} = (1, 52, 53, 1)$ lies on line ℓ_5
 348 : $P_{225345} = (0, 0, 54, 1)$ lies on line ℓ_3
 349 : $P_{225410} = (1, 1, 54, 1)$ lies on line ℓ_4
 350 : $P_{228866} = (1, 55, 54, 1)$ lies on line ℓ_5
 351 : $P_{229441} = (0, 0, 55, 1)$ lies on line ℓ_3
 352 : $P_{229506} = (1, 1, 55, 1)$ lies on line ℓ_4
 353 : $P_{232898} = (1, 54, 55, 1)$ lies on line ℓ_5
 354 : $P_{233537} = (0, 0, 56, 1)$ lies on line ℓ_3
 355 : $P_{233602} = (1, 1, 56, 1)$ lies on line ℓ_4
 356 : $P_{237186} = (1, 57, 56, 1)$ lies on line ℓ_5
 357 : $P_{237633} = (0, 0, 57, 1)$ lies on line ℓ_3

358 : $P_{237698} = (1, 1, 57, 1)$ lies on line ℓ_4
 359 : $P_{241218} = (1, 56, 57, 1)$ lies on line ℓ_5
 360 : $P_{241729} = (0, 0, 58, 1)$ lies on line ℓ_3
 361 : $P_{241794} = (1, 1, 58, 1)$ lies on line ℓ_4
 362 : $P_{245506} = (1, 59, 58, 1)$ lies on line ℓ_5
 363 : $P_{245825} = (0, 0, 59, 1)$ lies on line ℓ_3
 364 : $P_{245890} = (1, 1, 59, 1)$ lies on line ℓ_4
 365 : $P_{249538} = (1, 58, 59, 1)$ lies on line ℓ_5
 366 : $P_{249921} = (0, 0, 60, 1)$ lies on line ℓ_3
 367 : $P_{249986} = (1, 1, 60, 1)$ lies on line ℓ_4
 368 : $P_{253826} = (1, 61, 60, 1)$ lies on line ℓ_5

369 : $P_{254017} = (0, 0, 61, 1)$ lies on line ℓ_3
 370 : $P_{254082} = (1, 1, 61, 1)$ lies on line ℓ_4
 371 : $P_{257858} = (1, 60, 61, 1)$ lies on line ℓ_5
 372 : $P_{258113} = (0, 0, 62, 1)$ lies on line ℓ_3
 373 : $P_{258178} = (1, 1, 62, 1)$ lies on line ℓ_4
 374 : $P_{262146} = (1, 63, 62, 1)$ lies on line ℓ_5
 375 : $P_{262209} = (0, 0, 63, 1)$ lies on line ℓ_3
 376 : $P_{262274} = (1, 1, 63, 1)$ lies on line ℓ_4
 377 : $P_{266178} = (1, 62, 63, 1)$ lies on line ℓ_5

The single points on the surface are:

Points on surface but on no line

The surface has 3906 points not on any line:
Too many to print.

Line Intersection Graph

| | 0 | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| 0 | 0 | 1 | 1 | 0 | 0 | 0 |
| 1 | 1 | 0 | 1 | 1 | 1 | 0 |
| 2 | 1 | 1 | 0 | 1 | 1 | 1 |
| 3 | 0 | 1 | 1 | 0 | 1 | 0 |
| 4 | 0 | 1 | 1 | 1 | 0 | 1 |
| 5 | 0 | 0 | 1 | 0 | 1 | 0 |

Neighbor sets in the line intersection graph:

Line 0 intersects

| Line | ℓ_1 | ℓ_2 |
|----------|----------|----------|
| in point | P_5 | P_1 |

Line 1 intersects

| Line | ℓ_0 | ℓ_2 | ℓ_3 | ℓ_4 |
|----------|----------|----------|----------|----------|
| in point | P_5 | P_2 | P_2 | P_2 |

Line 2 intersects

| Line | ℓ_0 | ℓ_1 | ℓ_3 | ℓ_4 | ℓ_5 |
|----------|----------|----------|----------|----------|-----------|
| in point | P_1 | P_2 | P_2 | P_2 | P_{131} |

Line 3 intersects

| Line | ℓ_1 | ℓ_2 | ℓ_4 |
|----------|----------|----------|----------|
| in point | P_2 | P_2 | P_2 |

Line 4 intersects

| Line | ℓ_1 | ℓ_2 | ℓ_3 | ℓ_5 |
|----------|----------|----------|----------|------------|
| in point | P_2 | P_2 | P_2 | P_{4227} |

Line 5 intersects

| Line | ℓ_2 | ℓ_4 |
|----------|-----------|------------|
| in point | P_{131} | P_{4227} |

The surface has 4289 points:
Too many to print.