

Rank-65609 over GF(64)

January 15, 2021

The equation

The equation of the surface is :

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

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

The point rank of the equation over GF(64) is 1090789509

General information

Number of lines	6
Number of points	4289
Number of singular points	1
Number of Eckardt points	1
Number of double points	6
Number of single points	375
Number of points off lines	3907
Number of Hesse planes	0
Number of axes	0
Type of points on lines	65^6
Type of lines on points	$3, 2^6, 1^{375}, 0^{3907}$

Singular Points

The surface has 1 singular points:

$$0 : P_3 = \mathbf{P}(0, 0, 0, 1) = \mathbf{P}(0, 0, 0, 1)$$

The 6 Lines

The lines and their Pluecker coordinates are:

$$\begin{aligned} \ell_0 &= \left[\begin{array}{cccc} 0 & 1 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{array} \right]_{17043585} = \left[\begin{array}{cccc} 0 & 1 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{array} \right]_{17043585} = \mathbf{Pl}(0, 1, 0, 1, 0, 0)_{193} \\ \ell_1 &= \left[\begin{array}{cccc} 1 & 0 & 1 & 1 \\ 0 & 1 & 1 & 0 \end{array} \right]_{270466} = \left[\begin{array}{cccc} 1 & 0 & 1 & 1 \\ 0 & 1 & 1 & 0 \end{array} \right]_{270466} = \mathbf{Pl}(1, 1, 1, 1, 0, 1)_{286530} \end{aligned}$$

$$\begin{aligned}
\ell_2 &= \begin{bmatrix} 0 & 1 & \epsilon^{21} & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{17047225} = \begin{bmatrix} 0 & 1 & 57 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{17047225} = \mathbf{Pl}(0, 57, 0, 1, 0, 0)_{249} \\
\ell_3 &= \begin{bmatrix} 1 & 0 & \epsilon^{42} & 1 \\ 0 & 1 & \epsilon^{21} & 0 \end{bmatrix}_{499377} = \begin{bmatrix} 1 & 0 & 56 & 1 \\ 0 & 1 & 57 & 0 \end{bmatrix}_{499377} = \mathbf{Pl}(57, 56, 56, 57, 0, 1)_{512315} \\
\ell_4 &= \begin{bmatrix} 0 & 1 & \epsilon^{42} & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{17047160} = \begin{bmatrix} 0 & 1 & 56 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{17047160} = \mathbf{Pl}(0, 56, 0, 1, 0, 0)_{248} \\
\ell_5 &= \begin{bmatrix} 1 & 0 & \epsilon^{21} & 1 \\ 0 & 1 & \epsilon^{42} & 0 \end{bmatrix}_{503537} = \begin{bmatrix} 1 & 0 & 57 & 1 \\ 0 & 1 & 56 & 0 \end{bmatrix}_{503537} = \mathbf{Pl}(56, 57, 57, 56, 0, 1)_{508408}
\end{aligned}$$

Rank of lines: (17043585, 270466, 17047225, 499377, 17047160, 503537)

Rank of points on Klein quadric: (193, 286530, 249, 512315, 248, 508408)

Eckardt Points

The surface has 1 Eckardt points:

$$0 : P_3 = \mathbf{P}(0, 0, 0, 1) = \mathbf{P}(0, 0, 0, 1).$$

Double Points

The surface has 6 Double points:

The double points on the surface are:

$$\begin{aligned}
P_{131} &= (0, 1, 1, 0) = \ell_0 \cap \ell_1 \\
P_{241218} &= (1, 56, 57, 1) = \ell_1 \cap \ell_3 \\
P_{237186} &= (1, 57, 56, 1) = \ell_1 \cap \ell_5 \\
P_{3651} &= (0, 56, 1, 0) = \ell_2 \cap \ell_3
\end{aligned}$$

$$\begin{aligned}
P_4 &= (1, 1, 1, 1) = \ell_3 \cap \ell_5 \\
P_{3715} &= (0, 57, 1, 0) = \ell_4 \cap \ell_5
\end{aligned}$$

Single Points

The surface has 375 single points:

The single points on the surface are:

$$\begin{aligned}
0 : P_{4227} &= (1, 1, 0, 1) \text{ lies on line } \ell_1 \\
1 : P_{7747} &= (1, 56, 0, 1) \text{ lies on line } \ell_5 \\
2 : P_{7811} &= (1, 57, 0, 1) \text{ lies on line } \ell_3 \\
3 : P_{8259} &= (1, 0, 1, 1) \text{ lies on line } \ell_1 \\
4 : P_{8322} &= (0, 1, 1, 1) \text{ lies on line } \ell_0 \\
5 : P_{11841} &= (0, 56, 1, 1) \text{ lies on line } \ell_2 \\
6 : P_{11905} &= (0, 57, 1, 1) \text{ lies on line } \ell_4 \\
7 : P_{12481} &= (0, 2, 2, 1) \text{ lies on line } \ell_0 \\
8 : P_{12546} &= (1, 3, 2, 1) \text{ lies on line } \ell_1 \\
9 : P_{13441} &= (0, 17, 2, 1) \text{ lies on line } \ell_2 \\
10 : P_{13569} &= (0, 19, 2, 1) \text{ lies on line } \ell_4 \\
11 : P_{14914} &= (1, 40, 2, 1) \text{ lies on line } \ell_3 \\
12 : P_{15106} &= (1, 43, 2, 1) \text{ lies on line } \ell_5 \\
13 : P_{16578} &= (1, 2, 3, 1) \text{ lies on line } \ell_1 \\
14 : P_{16641} &= (0, 3, 3, 1) \text{ lies on line } \ell_0 \\
15 : P_{17474} &= (1, 16, 3, 1) \text{ lies on line } \ell_3 \\
16 : P_{17602} &= (1, 18, 3, 1) \text{ lies on line } \ell_5
\end{aligned}$$

$$\begin{aligned}
17 : P_{19073} &= (0, 41, 3, 1) \text{ lies on line } \ell_2 \\
18 : P_{19137} &= (0, 42, 3, 1) \text{ lies on line } \ell_4 \\
19 : P_{20801} &= (0, 4, 4, 1) \text{ lies on line } \ell_0 \\
20 : P_{20866} &= (1, 5, 4, 1) \text{ lies on line } \ell_1 \\
21 : P_{22274} &= (1, 27, 4, 1) \text{ lies on line } \ell_3 \\
22 : P_{22466} &= (1, 30, 4, 1) \text{ lies on line } \ell_5 \\
23 : P_{22721} &= (0, 34, 4, 1) \text{ lies on line } \ell_2 \\
24 : P_{22977} &= (0, 38, 4, 1) \text{ lies on line } \ell_4 \\
25 : P_{24898} &= (1, 4, 5, 1) \text{ lies on line } \ell_1 \\
26 : P_{24961} &= (0, 5, 5, 1) \text{ lies on line } \ell_0 \\
27 : P_{26305} &= (0, 26, 5, 1) \text{ lies on line } \ell_2 \\
28 : P_{26625} &= (0, 31, 5, 1) \text{ lies on line } \ell_4 \\
29 : P_{26882} &= (1, 35, 5, 1) \text{ lies on line } \ell_3 \\
30 : P_{27138} &= (1, 39, 5, 1) \text{ lies on line } \ell_5 \\
31 : P_{29121} &= (0, 6, 6, 1) \text{ lies on line } \ell_0 \\
32 : P_{29186} &= (1, 7, 6, 1) \text{ lies on line } \ell_1 \\
33 : P_{29378} &= (1, 10, 6, 1) \text{ lies on line } \ell_3
\end{aligned}$$

- 34 : $P_{29570} = (1, 13, 6, 1)$ lies on line ℓ_5
 35 : $P_{32001} = (0, 51, 6, 1)$ lies on line ℓ_2
 36 : $P_{32129} = (0, 53, 6, 1)$ lies on line ℓ_4
 37 : $P_{33218} = (1, 6, 7, 1)$ lies on line ℓ_1
 38 : $P_{33281} = (0, 7, 7, 1)$ lies on line ℓ_0
 39 : $P_{33537} = (0, 11, 7, 1)$ lies on line ℓ_2
 40 : $P_{33601} = (0, 12, 7, 1)$ lies on line ℓ_4
 41 : $P_{36034} = (1, 50, 7, 1)$ lies on line ℓ_3
 42 : $P_{36162} = (1, 52, 7, 1)$ lies on line ℓ_5
 43 : $P_{37441} = (0, 8, 8, 1)$ lies on line ℓ_0
 44 : $P_{37506} = (1, 9, 8, 1)$ lies on line ℓ_1
 45 : $P_{38274} = (1, 21, 8, 1)$ lies on line ℓ_5
 46 : $P_{38722} = (1, 28, 8, 1)$ lies on line ℓ_3
 47 : $P_{39297} = (0, 37, 8, 1)$ lies on line ℓ_2
 48 : $P_{39809} = (0, 45, 8, 1)$ lies on line ℓ_4
 49 : $P_{41538} = (1, 8, 9, 1)$ lies on line ℓ_1
 50 : $P_{41601} = (0, 9, 9, 1)$ lies on line ℓ_0
 51 : $P_{42305} = (0, 20, 9, 1)$ lies on line ℓ_4
 52 : $P_{42881} = (0, 29, 9, 1)$ lies on line ℓ_2
 53 : $P_{43330} = (1, 36, 9, 1)$ lies on line ℓ_3
 54 : $P_{43842} = (1, 44, 9, 1)$ lies on line ℓ_5
 55 : $P_{45506} = (1, 6, 10, 1)$ lies on line ℓ_5
 56 : $P_{45761} = (0, 10, 10, 1)$ lies on line ℓ_0
 57 : $P_{45826} = (1, 11, 10, 1)$ lies on line ℓ_1
 58 : $P_{45954} = (1, 13, 10, 1)$ lies on line ℓ_3
 59 : $P_{48449} = (0, 52, 10, 1)$ lies on line ℓ_2
 60 : $P_{49089} = (0, 62, 10, 1)$ lies on line ℓ_4
 61 : $P_{49665} = (0, 7, 11, 1)$ lies on line ℓ_4
 62 : $P_{49858} = (1, 10, 11, 1)$ lies on line ℓ_1
 63 : $P_{49921} = (0, 11, 11, 1)$ lies on line ℓ_0
 64 : $P_{49985} = (0, 12, 11, 1)$ lies on line ℓ_2
 65 : $P_{52610} = (1, 53, 11, 1)$ lies on line ℓ_3
 66 : $P_{53250} = (1, 63, 11, 1)$ lies on line ℓ_5
 67 : $P_{53761} = (0, 7, 12, 1)$ lies on line ℓ_2
 68 : $P_{54017} = (0, 11, 12, 1)$ lies on line ℓ_4
 69 : $P_{54081} = (0, 12, 12, 1)$ lies on line ℓ_0
 70 : $P_{54146} = (1, 13, 12, 1)$ lies on line ℓ_1
 71 : $P_{56578} = (1, 51, 12, 1)$ lies on line ℓ_5
 72 : $P_{57282} = (1, 62, 12, 1)$ lies on line ℓ_3
 73 : $P_{57794} = (1, 6, 13, 1)$ lies on line ℓ_3
 74 : $P_{58050} = (1, 10, 13, 1)$ lies on line ℓ_5
 75 : $P_{58178} = (1, 12, 13, 1)$ lies on line ℓ_1
 76 : $P_{58241} = (0, 13, 13, 1)$ lies on line ℓ_0
 77 : $P_{60609} = (0, 50, 13, 1)$ lies on line ℓ_4
 78 : $P_{61441} = (0, 63, 13, 1)$ lies on line ℓ_2
 79 : $P_{62401} = (0, 14, 14, 1)$ lies on line ℓ_0
 80 : $P_{62466} = (1, 15, 14, 1)$ lies on line ℓ_1
 81 : $P_{62913} = (0, 22, 14, 1)$ lies on line ℓ_2
 82 : $P_{63041} = (0, 24, 14, 1)$ lies on line ℓ_4
 83 : $P_{63554} = (1, 32, 14, 1)$ lies on line ℓ_5
 84 : $P_{64514} = (1, 47, 14, 1)$ lies on line ℓ_3
 85 : $P_{66498} = (1, 14, 15, 1)$ lies on line ℓ_1
 86 : $P_{66561} = (0, 15, 15, 1)$ lies on line ℓ_0
 87 : $P_{67074} = (1, 23, 15, 1)$ lies on line ℓ_3
 88 : $P_{67202} = (1, 25, 15, 1)$ lies on line ℓ_5
 89 : $P_{67713} = (0, 33, 15, 1)$ lies on line ℓ_4
 90 : $P_{68545} = (0, 46, 15, 1)$ lies on line ℓ_2
 91 : $P_{69890} = (1, 3, 16, 1)$ lies on line ℓ_5
 92 : $P_{70721} = (0, 16, 16, 1)$ lies on line ℓ_0
 93 : $P_{70786} = (1, 17, 16, 1)$ lies on line ℓ_1
 94 : $P_{70850} = (1, 18, 16, 1)$ lies on line ℓ_3
 95 : $P_{72449} = (0, 43, 16, 1)$ lies on line ℓ_2
 96 : $P_{73473} = (0, 59, 16, 1)$ lies on line ℓ_4
 97 : $P_{73921} = (0, 2, 17, 1)$ lies on line ℓ_4
 98 : $P_{74818} = (1, 16, 17, 1)$ lies on line ℓ_1
 99 : $P_{74881} = (0, 17, 17, 1)$ lies on line ℓ_0
 100 : $P_{75009} = (0, 19, 17, 1)$ lies on line ℓ_2
 101 : $P_{76482} = (1, 42, 17, 1)$ lies on line ℓ_3
 102 : $P_{77506} = (1, 58, 17, 1)$ lies on line ℓ_5
 103 : $P_{78082} = (1, 3, 18, 1)$ lies on line ℓ_3
 104 : $P_{78914} = (1, 16, 18, 1)$ lies on line ℓ_5
 105 : $P_{79041} = (0, 18, 18, 1)$ lies on line ℓ_0
 106 : $P_{79106} = (1, 19, 18, 1)$ lies on line ℓ_1
 107 : $P_{80449} = (0, 40, 18, 1)$ lies on line ℓ_4
 108 : $P_{81601} = (0, 58, 18, 1)$ lies on line ℓ_2
 109 : $P_{82113} = (0, 2, 19, 1)$ lies on line ℓ_2
 110 : $P_{83073} = (0, 17, 19, 1)$ lies on line ℓ_4
 111 : $P_{83138} = (1, 18, 19, 1)$ lies on line ℓ_1
 112 : $P_{83201} = (0, 19, 19, 1)$ lies on line ℓ_0
 113 : $P_{84610} = (1, 41, 19, 1)$ lies on line ℓ_5
 114 : $P_{85762} = (1, 59, 19, 1)$ lies on line ℓ_3
 115 : $P_{86657} = (0, 9, 20, 1)$ lies on line ℓ_2
 116 : $P_{87361} = (0, 20, 20, 1)$ lies on line ℓ_0
 117 : $P_{87426} = (1, 21, 20, 1)$ lies on line ℓ_1
 118 : $P_{87937} = (0, 29, 20, 1)$ lies on line ℓ_4
 119 : $P_{88450} = (1, 37, 20, 1)$ lies on line ℓ_5
 120 : $P_{89154} = (1, 48, 20, 1)$ lies on line ℓ_3
 121 : $P_{90690} = (1, 8, 21, 1)$ lies on line ℓ_3
 122 : $P_{91458} = (1, 20, 21, 1)$ lies on line ℓ_1
 123 : $P_{91521} = (0, 21, 21, 1)$ lies on line ℓ_0
 124 : $P_{91970} = (1, 28, 21, 1)$ lies on line ℓ_5
 125 : $P_{92481} = (0, 36, 21, 1)$ lies on line ℓ_4
 126 : $P_{93313} = (0, 49, 21, 1)$ lies on line ℓ_2
 127 : $P_{95169} = (0, 14, 22, 1)$ lies on line ℓ_4
 128 : $P_{95681} = (0, 22, 22, 1)$ lies on line ℓ_0
 129 : $P_{95746} = (1, 23, 22, 1)$ lies on line ℓ_1
 130 : $P_{95809} = (0, 24, 22, 1)$ lies on line ℓ_2
 131 : $P_{96386} = (1, 33, 22, 1)$ lies on line ℓ_3
 132 : $P_{97730} = (1, 54, 22, 1)$ lies on line ℓ_5
 133 : $P_{99330} = (1, 15, 23, 1)$ lies on line ℓ_5
 134 : $P_{99778} = (1, 22, 23, 1)$ lies on line ℓ_1
 135 : $P_{99841} = (0, 23, 23, 1)$ lies on line ℓ_0
 136 : $P_{99970} = (1, 25, 23, 1)$ lies on line ℓ_3
 137 : $P_{100417} = (0, 32, 23, 1)$ lies on line ℓ_2
 138 : $P_{101889} = (0, 55, 23, 1)$ lies on line ℓ_4
 139 : $P_{103361} = (0, 14, 24, 1)$ lies on line ℓ_2
 140 : $P_{103873} = (0, 22, 24, 1)$ lies on line ℓ_4
 141 : $P_{104001} = (0, 24, 24, 1)$ lies on line ℓ_0

142 : $P_{104066} = (1, 25, 24, 1)$ lies on line ℓ_1
143 : $P_{105410} = (1, 46, 24, 1)$ lies on line ℓ_5
144 : $P_{105986} = (1, 55, 24, 1)$ lies on line ℓ_3
145 : $P_{107522} = (1, 15, 25, 1)$ lies on line ℓ_3
146 : $P_{108034} = (1, 23, 25, 1)$ lies on line ℓ_5
147 : $P_{108098} = (1, 24, 25, 1)$ lies on line ℓ_1
148 : $P_{108161} = (0, 25, 25, 1)$ lies on line ℓ_0
149 : $P_{109569} = (0, 47, 25, 1)$ lies on line ℓ_4
150 : $P_{110017} = (0, 54, 25, 1)$ lies on line ℓ_2
151 : $P_{110977} = (0, 5, 26, 1)$ lies on line ℓ_4
152 : $P_{112321} = (0, 26, 26, 1)$ lies on line ℓ_0
153 : $P_{112386} = (1, 27, 26, 1)$ lies on line ℓ_1
154 : $P_{112641} = (0, 31, 26, 1)$ lies on line ℓ_2
155 : $P_{113090} = (1, 38, 26, 1)$ lies on line ℓ_3
156 : $P_{114562} = (1, 61, 26, 1)$ lies on line ℓ_5
157 : $P_{115010} = (1, 4, 27, 1)$ lies on line ℓ_5
158 : $P_{116418} = (1, 26, 27, 1)$ lies on line ℓ_1
159 : $P_{116481} = (0, 27, 27, 1)$ lies on line ℓ_0
160 : $P_{116674} = (1, 30, 27, 1)$ lies on line ℓ_3
161 : $P_{117249} = (0, 39, 27, 1)$ lies on line ℓ_2
162 : $P_{118593} = (0, 60, 27, 1)$ lies on line ℓ_4
163 : $P_{119362} = (1, 8, 28, 1)$ lies on line ℓ_5
164 : $P_{120194} = (1, 21, 28, 1)$ lies on line ℓ_3
165 : $P_{120641} = (0, 28, 28, 1)$ lies on line ℓ_0
166 : $P_{120706} = (1, 29, 28, 1)$ lies on line ℓ_1
167 : $P_{121665} = (0, 44, 28, 1)$ lies on line ℓ_2
168 : $P_{121921} = (0, 48, 28, 1)$ lies on line ℓ_4
169 : $P_{123521} = (0, 9, 29, 1)$ lies on line ℓ_4
170 : $P_{124225} = (0, 20, 29, 1)$ lies on line ℓ_2
171 : $P_{124738} = (1, 28, 29, 1)$ lies on line ℓ_1
172 : $P_{124801} = (0, 29, 29, 1)$ lies on line ℓ_0
173 : $P_{125826} = (1, 45, 29, 1)$ lies on line ℓ_3
174 : $P_{126082} = (1, 49, 29, 1)$ lies on line ℓ_5
175 : $P_{127298} = (1, 4, 30, 1)$ lies on line ℓ_3
176 : $P_{128770} = (1, 27, 30, 1)$ lies on line ℓ_5
177 : $P_{128961} = (0, 30, 30, 1)$ lies on line ℓ_0
178 : $P_{129026} = (1, 31, 30, 1)$ lies on line ℓ_1
179 : $P_{129281} = (0, 35, 30, 1)$ lies on line ℓ_4
180 : $P_{130945} = (0, 61, 30, 1)$ lies on line ℓ_2
181 : $P_{131457} = (0, 5, 31, 1)$ lies on line ℓ_2
182 : $P_{132801} = (0, 26, 31, 1)$ lies on line ℓ_4
183 : $P_{133058} = (1, 30, 31, 1)$ lies on line ℓ_1
184 : $P_{133121} = (0, 31, 31, 1)$ lies on line ℓ_0
185 : $P_{133314} = (1, 34, 31, 1)$ lies on line ℓ_5
186 : $P_{134978} = (1, 60, 31, 1)$ lies on line ℓ_3
187 : $P_{136130} = (1, 14, 32, 1)$ lies on line ℓ_3
188 : $P_{136705} = (0, 23, 32, 1)$ lies on line ℓ_4
189 : $P_{137281} = (0, 32, 32, 1)$ lies on line ℓ_0
190 : $P_{137346} = (1, 33, 32, 1)$ lies on line ℓ_1
191 : $P_{138242} = (1, 47, 32, 1)$ lies on line ℓ_5
192 : $P_{138753} = (0, 55, 32, 1)$ lies on line ℓ_2
193 : $P_{140289} = (0, 15, 33, 1)$ lies on line ℓ_2
194 : $P_{140738} = (1, 22, 33, 1)$ lies on line ℓ_5
195 : $P_{141378} = (1, 32, 33, 1)$ lies on line ℓ_1
196 : $P_{141441} = (0, 33, 33, 1)$ lies on line ℓ_0
197 : $P_{142273} = (0, 46, 33, 1)$ lies on line ℓ_4
198 : $P_{142786} = (1, 54, 33, 1)$ lies on line ℓ_3
199 : $P_{143681} = (0, 4, 34, 1)$ lies on line ℓ_4
200 : $P_{145410} = (1, 31, 34, 1)$ lies on line ℓ_3
201 : $P_{145601} = (0, 34, 34, 1)$ lies on line ℓ_0
202 : $P_{145666} = (1, 35, 34, 1)$ lies on line ℓ_1
203 : $P_{145857} = (0, 38, 34, 1)$ lies on line ℓ_2
204 : $P_{147266} = (1, 60, 34, 1)$ lies on line ℓ_5
205 : $P_{147842} = (1, 5, 35, 1)$ lies on line ℓ_5
206 : $P_{149441} = (0, 30, 35, 1)$ lies on line ℓ_2
207 : $P_{149698} = (1, 34, 35, 1)$ lies on line ℓ_1
208 : $P_{149761} = (0, 35, 35, 1)$ lies on line ℓ_0
209 : $P_{150018} = (1, 39, 35, 1)$ lies on line ℓ_3
210 : $P_{151425} = (0, 61, 35, 1)$ lies on line ℓ_4
211 : $P_{152194} = (1, 9, 36, 1)$ lies on line ℓ_5
212 : $P_{152961} = (0, 21, 36, 1)$ lies on line ℓ_2
213 : $P_{153921} = (0, 36, 36, 1)$ lies on line ℓ_0
214 : $P_{153986} = (1, 37, 36, 1)$ lies on line ℓ_1
215 : $P_{154434} = (1, 44, 36, 1)$ lies on line ℓ_3
216 : $P_{154753} = (0, 49, 36, 1)$ lies on line ℓ_4
217 : $P_{156225} = (0, 8, 37, 1)$ lies on line ℓ_4
218 : $P_{156994} = (1, 20, 37, 1)$ lies on line ℓ_3
219 : $P_{158018} = (1, 36, 37, 1)$ lies on line ℓ_1
220 : $P_{158081} = (0, 37, 37, 1)$ lies on line ℓ_0
221 : $P_{158593} = (0, 45, 37, 1)$ lies on line ℓ_2
222 : $P_{158786} = (1, 48, 37, 1)$ lies on line ℓ_5
223 : $P_{160065} = (0, 4, 38, 1)$ lies on line ℓ_2
224 : $P_{161474} = (1, 26, 38, 1)$ lies on line ℓ_5
225 : $P_{161985} = (0, 34, 38, 1)$ lies on line ℓ_4
226 : $P_{162241} = (0, 38, 38, 1)$ lies on line ℓ_0
227 : $P_{162306} = (1, 39, 38, 1)$ lies on line ℓ_1
228 : $P_{163714} = (1, 61, 38, 1)$ lies on line ℓ_3
229 : $P_{164226} = (1, 5, 39, 1)$ lies on line ℓ_3
230 : $P_{165633} = (0, 27, 39, 1)$ lies on line ℓ_4
231 : $P_{166146} = (1, 35, 39, 1)$ lies on line ℓ_5
232 : $P_{166338} = (1, 38, 39, 1)$ lies on line ℓ_1
233 : $P_{166401} = (0, 39, 39, 1)$ lies on line ℓ_0
234 : $P_{167745} = (0, 60, 39, 1)$ lies on line ℓ_2
235 : $P_{168130} = (1, 2, 40, 1)$ lies on line ℓ_5
236 : $P_{169153} = (0, 18, 40, 1)$ lies on line ℓ_2
237 : $P_{170561} = (0, 40, 40, 1)$ lies on line ℓ_0
238 : $P_{170626} = (1, 41, 40, 1)$ lies on line ℓ_1
239 : $P_{170754} = (1, 43, 40, 1)$ lies on line ℓ_3
240 : $P_{171713} = (0, 58, 40, 1)$ lies on line ℓ_4
241 : $P_{172289} = (0, 3, 41, 1)$ lies on line ℓ_4
242 : $P_{173314} = (1, 19, 41, 1)$ lies on line ℓ_3
243 : $P_{174658} = (1, 40, 41, 1)$ lies on line ℓ_1
244 : $P_{174721} = (0, 41, 41, 1)$ lies on line ℓ_0
245 : $P_{174785} = (0, 42, 41, 1)$ lies on line ℓ_2
246 : $P_{175874} = (1, 59, 41, 1)$ lies on line ℓ_5
247 : $P_{176385} = (0, 3, 42, 1)$ lies on line ℓ_2
248 : $P_{177282} = (1, 17, 42, 1)$ lies on line ℓ_5
249 : $P_{178817} = (0, 41, 42, 1)$ lies on line ℓ_4

250 : $P_{178881} = (0, 42, 42, 1)$ lies on line ℓ_0
 251 : $P_{178946} = (1, 43, 42, 1)$ lies on line ℓ_1
 252 : $P_{179906} = (1, 58, 42, 1)$ lies on line ℓ_3
 253 : $P_{180418} = (1, 2, 43, 1)$ lies on line ℓ_3
 254 : $P_{181313} = (0, 16, 43, 1)$ lies on line ℓ_4
 255 : $P_{182850} = (1, 40, 43, 1)$ lies on line ℓ_5
 256 : $P_{182978} = (1, 42, 43, 1)$ lies on line ℓ_1
 257 : $P_{183041} = (0, 43, 43, 1)$ lies on line ℓ_0
 258 : $P_{184065} = (0, 59, 43, 1)$ lies on line ℓ_2
 259 : $P_{184962} = (1, 9, 44, 1)$ lies on line ℓ_3
 260 : $P_{186177} = (0, 28, 44, 1)$ lies on line ℓ_4
 261 : $P_{186690} = (1, 36, 44, 1)$ lies on line ℓ_5
 262 : $P_{187201} = (0, 44, 44, 1)$ lies on line ℓ_0
 263 : $P_{187266} = (1, 45, 44, 1)$ lies on line ℓ_1
 264 : $P_{187457} = (0, 48, 44, 1)$ lies on line ℓ_2
 265 : $P_{188993} = (0, 8, 45, 1)$ lies on line ℓ_2
 266 : $P_{190338} = (1, 29, 45, 1)$ lies on line ℓ_5
 267 : $P_{190849} = (0, 37, 45, 1)$ lies on line ℓ_4
 268 : $P_{191298} = (1, 44, 45, 1)$ lies on line ℓ_1
 269 : $P_{191361} = (0, 45, 45, 1)$ lies on line ℓ_0
 270 : $P_{191618} = (1, 49, 45, 1)$ lies on line ℓ_3
 271 : $P_{193537} = (0, 15, 46, 1)$ lies on line ℓ_4
 272 : $P_{194114} = (1, 24, 46, 1)$ lies on line ℓ_3
 273 : $P_{194689} = (0, 33, 46, 1)$ lies on line ℓ_2
 274 : $P_{195521} = (0, 46, 46, 1)$ lies on line ℓ_0
 275 : $P_{195586} = (1, 47, 46, 1)$ lies on line ℓ_1
 276 : $P_{196098} = (1, 55, 46, 1)$ lies on line ℓ_5
 277 : $P_{197570} = (1, 14, 47, 1)$ lies on line ℓ_5
 278 : $P_{198273} = (0, 25, 47, 1)$ lies on line ℓ_2
 279 : $P_{198722} = (1, 32, 47, 1)$ lies on line ℓ_3
 280 : $P_{199618} = (1, 46, 47, 1)$ lies on line ℓ_1
 281 : $P_{199681} = (0, 47, 47, 1)$ lies on line ℓ_0
 282 : $P_{200129} = (0, 54, 47, 1)$ lies on line ℓ_4
 283 : $P_{202050} = (1, 20, 48, 1)$ lies on line ℓ_5
 284 : $P_{202561} = (0, 28, 48, 1)$ lies on line ℓ_2
 285 : $P_{203138} = (1, 37, 48, 1)$ lies on line ℓ_3
 286 : $P_{203585} = (0, 44, 48, 1)$ lies on line ℓ_4
 287 : $P_{203841} = (0, 48, 48, 1)$ lies on line ℓ_0
 288 : $P_{203906} = (1, 49, 48, 1)$ lies on line ℓ_1
 289 : $P_{206209} = (0, 21, 49, 1)$ lies on line ℓ_4
 290 : $P_{206722} = (1, 29, 49, 1)$ lies on line ℓ_3
 291 : $P_{207169} = (0, 36, 49, 1)$ lies on line ℓ_2
 292 : $P_{207746} = (1, 45, 49, 1)$ lies on line ℓ_5
 293 : $P_{207938} = (1, 48, 49, 1)$ lies on line ℓ_1
 294 : $P_{208001} = (0, 49, 49, 1)$ lies on line ℓ_0
 295 : $P_{209410} = (1, 7, 50, 1)$ lies on line ℓ_5
 296 : $P_{209793} = (0, 13, 50, 1)$ lies on line ℓ_2
 297 : $P_{212161} = (0, 50, 50, 1)$ lies on line ℓ_0
 298 : $P_{212226} = (1, 51, 50, 1)$ lies on line ℓ_1
 299 : $P_{212290} = (1, 52, 50, 1)$ lies on line ℓ_3
 300 : $P_{212993} = (0, 63, 50, 1)$ lies on line ℓ_4
 301 : $P_{213441} = (0, 6, 51, 1)$ lies on line ℓ_4
 302 : $P_{213826} = (1, 12, 51, 1)$ lies on line ℓ_3
 303 : $P_{216258} = (1, 50, 51, 1)$ lies on line ℓ_1

304 : $P_{216321} = (0, 51, 51, 1)$ lies on line ℓ_0
 305 : $P_{216449} = (0, 53, 51, 1)$ lies on line ℓ_2
 306 : $P_{217026} = (1, 62, 51, 1)$ lies on line ℓ_5
 307 : $P_{217602} = (1, 7, 52, 1)$ lies on line ℓ_3
 308 : $P_{217793} = (0, 10, 52, 1)$ lies on line ℓ_4
 309 : $P_{220354} = (1, 50, 52, 1)$ lies on line ℓ_5
 310 : $P_{220481} = (0, 52, 52, 1)$ lies on line ℓ_0
 311 : $P_{220546} = (1, 53, 52, 1)$ lies on line ℓ_1
 312 : $P_{221121} = (0, 62, 52, 1)$ lies on line ℓ_2
 313 : $P_{221633} = (0, 6, 53, 1)$ lies on line ℓ_2
 314 : $P_{221954} = (1, 11, 53, 1)$ lies on line ℓ_5
 315 : $P_{224513} = (0, 51, 53, 1)$ lies on line ℓ_4
 316 : $P_{224578} = (1, 52, 53, 1)$ lies on line ℓ_1
 317 : $P_{224641} = (0, 53, 53, 1)$ lies on line ℓ_0
 318 : $P_{225282} = (1, 63, 53, 1)$ lies on line ℓ_3
 319 : $P_{226754} = (1, 22, 54, 1)$ lies on line ℓ_3
 320 : $P_{226945} = (0, 25, 54, 1)$ lies on line ℓ_4
 321 : $P_{227458} = (1, 33, 54, 1)$ lies on line ℓ_5
 322 : $P_{228353} = (0, 47, 54, 1)$ lies on line ℓ_2
 323 : $P_{228801} = (0, 54, 54, 1)$ lies on line ℓ_0
 324 : $P_{228866} = (1, 55, 54, 1)$ lies on line ℓ_1
 325 : $P_{230913} = (0, 23, 55, 1)$ lies on line ℓ_2
 326 : $P_{230978} = (1, 24, 55, 1)$ lies on line ℓ_5
 327 : $P_{231489} = (0, 32, 55, 1)$ lies on line ℓ_4
 328 : $P_{232386} = (1, 46, 55, 1)$ lies on line ℓ_3
 329 : $P_{232898} = (1, 54, 55, 1)$ lies on line ℓ_1
 330 : $P_{232961} = (0, 55, 55, 1)$ lies on line ℓ_0
 331 : $P_{233538} = (1, 0, 56, 1)$ lies on line ℓ_3
 332 : $P_{233601} = (0, 1, 56, 1)$ lies on line ℓ_4
 333 : $P_{237121} = (0, 56, 56, 1)$ lies on line ℓ_0
 334 : $P_{237185} = (0, 57, 56, 1)$ lies on line ℓ_2
 335 : $P_{237634} = (1, 0, 57, 1)$ lies on line ℓ_5
 336 : $P_{237697} = (0, 1, 57, 1)$ lies on line ℓ_2
 337 : $P_{241217} = (0, 56, 57, 1)$ lies on line ℓ_4
 338 : $P_{241281} = (0, 57, 57, 1)$ lies on line ℓ_0
 339 : $P_{242818} = (1, 17, 58, 1)$ lies on line ℓ_3
 340 : $P_{242881} = (0, 18, 58, 1)$ lies on line ℓ_4
 341 : $P_{244289} = (0, 40, 58, 1)$ lies on line ℓ_2
 342 : $P_{244418} = (1, 42, 58, 1)$ lies on line ℓ_5
 343 : $P_{245441} = (0, 58, 58, 1)$ lies on line ℓ_0
 344 : $P_{245506} = (1, 59, 58, 1)$ lies on line ℓ_1
 345 : $P_{246849} = (0, 16, 59, 1)$ lies on line ℓ_2
 346 : $P_{247042} = (1, 19, 59, 1)$ lies on line ℓ_5
 347 : $P_{248450} = (1, 41, 59, 1)$ lies on line ℓ_3
 348 : $P_{248577} = (0, 43, 59, 1)$ lies on line ℓ_4
 349 : $P_{249538} = (1, 58, 59, 1)$ lies on line ℓ_1
 350 : $P_{249601} = (0, 59, 59, 1)$ lies on line ℓ_0
 351 : $P_{251649} = (0, 27, 60, 1)$ lies on line ℓ_2
 352 : $P_{251906} = (1, 31, 60, 1)$ lies on line ℓ_5
 353 : $P_{252098} = (1, 34, 60, 1)$ lies on line ℓ_3
 354 : $P_{252417} = (0, 39, 60, 1)$ lies on line ℓ_4
 355 : $P_{253761} = (0, 60, 60, 1)$ lies on line ℓ_0
 356 : $P_{253826} = (1, 61, 60, 1)$ lies on line ℓ_1
 357 : $P_{255682} = (1, 26, 61, 1)$ lies on line ℓ_3

358 : $P_{255937} = (0, 30, 61, 1)$ lies on line ℓ_4
 359 : $P_{256257} = (0, 35, 61, 1)$ lies on line ℓ_2
 360 : $P_{256450} = (1, 38, 61, 1)$ lies on line ℓ_5
 361 : $P_{257858} = (1, 60, 61, 1)$ lies on line ℓ_1
 362 : $P_{257921} = (0, 61, 61, 1)$ lies on line ℓ_0
 363 : $P_{258753} = (0, 10, 62, 1)$ lies on line ℓ_2
 364 : $P_{258882} = (1, 12, 62, 1)$ lies on line ℓ_5
 365 : $P_{261378} = (1, 51, 62, 1)$ lies on line ℓ_3
 366 : $P_{261441} = (0, 52, 62, 1)$ lies on line ℓ_4

367 : $P_{262081} = (0, 62, 62, 1)$ lies on line ℓ_0
 368 : $P_{262146} = (1, 63, 62, 1)$ lies on line ℓ_1
 369 : $P_{262914} = (1, 11, 63, 1)$ lies on line ℓ_3
 370 : $P_{263041} = (0, 13, 63, 1)$ lies on line ℓ_4
 371 : $P_{265409} = (0, 50, 63, 1)$ lies on line ℓ_2
 372 : $P_{265602} = (1, 53, 63, 1)$ lies on line ℓ_5
 373 : $P_{266178} = (1, 62, 63, 1)$ lies on line ℓ_1
 374 : $P_{266241} = (0, 63, 63, 1)$ lies on line ℓ_0

The single points on the surface are:

Points on surface but on no line

The surface has 3907 points not on any line:
Too many to print.

Line Intersection Graph

	0	1	2	3	4	5
0	0	1	1	0	1	0
1	1	0	0	1	0	1
2	1	0	0	1	1	0
3	0	1	1	0	0	1
4	1	0	1	0	0	1
5	0	1	0	1	1	0

Neighbor sets in the line intersection graph:

Line 0 intersects

Line	ℓ_1	ℓ_2	ℓ_4
in point	P_{131}	P_3	P_3

Line 1 intersects

Line	ℓ_0	ℓ_3	ℓ_5
in point	P_{131}	P_{241218}	P_{237186}

Line 2 intersects

Line	ℓ_0	ℓ_3	ℓ_4
in point	P_3	P_{3651}	P_3

Line 3 intersects

Line	ℓ_1	ℓ_2	ℓ_5
in point	P_{241218}	P_{3651}	P_4

Line 4 intersects

Line	ℓ_0	ℓ_2	ℓ_5
in point	P_3	P_3	P_{3715}

Line 5 intersects

Line	ℓ_1	ℓ_3	ℓ_4
in point	P_{237186}	P_4	P_{3715}

The surface has 4289 points:
Too many to print.