Rank-337 over GF(64)

January 15, 2021

The equation

The equation of the surface is:

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

The point rank of the equation over GF(64) is 1090789517

General information

Number of lines	6
Number of points	4289
Number of singular points	1
Number of Eckardt points	2
Number of double points	3
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	$3^2, 2^3, 1^{378}, 0^{3906}$

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:

$$\ell_0 = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & \epsilon^{18} & 0 \end{bmatrix}_{11} = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 11 & 0 \end{bmatrix}_{11} = \mathbf{Pl}(37, 0, 1, 0, 0, 0)_{39}$$

$$\ell_1 = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & \epsilon^{36} & 0 \end{bmatrix}_{36} = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 36 & 0 \end{bmatrix}_{36} = \mathbf{Pl}(46, 0, 1, 0, 0, 0)_{48}$$

$$\ell_2 = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & \epsilon^9 & 0 \end{bmatrix}_{47} = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 47 & 0 \end{bmatrix}_{47} = \mathbf{Pl}(10, 0, 1, 0, 0, 0)_{12}$$

$$\ell_3 = \begin{bmatrix} 0 & 1 & \epsilon^9 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{17046575} = \begin{bmatrix} 0 & 1 & 47 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{17046575} = \mathbf{Pl}(0, 47, 0, 1, 0, 0)_{239}$$

$$\ell_4 = \begin{bmatrix} 0 & 1 & \epsilon^{18} & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{17044235} = \begin{bmatrix} 0 & 1 & 11 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{17044235} = \mathbf{Pl}(0, 11, 0, 1, 0, 0)_{203}$$

$$\ell_5 = \begin{bmatrix} 0 & 1 & \epsilon^{36} & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{17045860} = \begin{bmatrix} 0 & 1 & 36 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{17045860} = \mathbf{Pl}(0, 36, 0, 1, 0, 0)_{228}$$

Rank of lines: (11, 36, 47, 17046575, 17044235, 17045860) Rank of points on Klein quadric: (39, 48, 12, 239, 203, 228)

Eckardt Points

The surface has 2 Eckardt points: $0: P_0 = \mathbf{P}(1, 0, 0, 0) = \mathbf{P}(1, 0, 0, 0),$ $1: P_3 = \mathbf{P}(0, 0, 0, 1) = \mathbf{P}(0, 0, 0, 1).$

Double Points

The surface has 3 Double points: The double points on the surface are:

$$P_{2435} = (0, 37, 1, 0) = \ell_0 \cap \ell_4$$

$$P_{3011} = (0, 46, 1, 0) = \ell_1 \cap \ell_5$$

$P_{707} = (0, 10, 1, 0) = \ell_2 \cap \ell_3$

Single Points

The surface has 378 single points: The single points on the surface are:

$0: P_{708} = (1, 10, 1, 0)$ lies on line ℓ_2	18:
1: $P_{709} = (2, 10, 1, 0)$ lies on line ℓ_2	19:
$2: P_{710} = (3, 10, 1, 0)$ lies on line ℓ_2	20 :
$3: P_{711} = (4, 10, 1, 0)$ lies on line ℓ_2	21 :
$4: P_{712} = (5, 10, 1, 0)$ lies on line ℓ_2	22:
$5: P_{713} = (6, 10, 1, 0)$ lies on line ℓ_2	23 :
6: $P_{714} = (7, 10, 1, 0)$ lies on line ℓ_2	24:
7: $P_{715} = (8, 10, 1, 0)$ lies on line ℓ_2	25:
$8: P_{716} = (9, 10, 1, 0)$ lies on line ℓ_2	26 :
9: $P_{717} = (10, 10, 1, 0)$ lies on line ℓ_2	27 :
10: $P_{718} = (11, 10, 1, 0)$ lies on line ℓ_2	28:
11: $P_{719} = (12, 10, 1, 0)$ lies on line ℓ_2	29:
12: $P_{720} = (13, 10, 1, 0)$ lies on line ℓ_2	30 :
13: $P_{721} = (14, 10, 1, 0)$ lies on line ℓ_2	31:
14: $P_{722} = (15, 10, 1, 0)$ lies on line ℓ_2	32:
15: $P_{723} = (16, 10, 1, 0)$ lies on line ℓ_2	33 :
16: $P_{724} = (17, 10, 1, 0)$ lies on line ℓ_2	34 :
17: $P_{725} = (18, 10, 1, 0)$ lies on line ℓ_2	35:

$$\begin{array}{l} 18:\ P_{726} = (19,10,1,0)\ \text{lies on line}\ \ell_2\\ 19:\ P_{727} = (20,10,1,0)\ \text{lies on line}\ \ell_2\\ 20:\ P_{728} = (21,10,1,0)\ \text{lies on line}\ \ell_2\\ 21:\ P_{729} = (22,10,1,0)\ \text{lies on line}\ \ell_2\\ 22:\ P_{730} = (23,10,1,0)\ \text{lies on line}\ \ell_2\\ 23:\ P_{731} = (24,10,1,0)\ \text{lies on line}\ \ell_2\\ 24:\ P_{732} = (25,10,1,0)\ \text{lies on line}\ \ell_2\\ 25:\ P_{733} = (26,10,1,0)\ \text{lies on line}\ \ell_2\\ 25:\ P_{734} = (27,10,1,0)\ \text{lies on line}\ \ell_2\\ 27:\ P_{735} = (28,10,1,0)\ \text{lies on line}\ \ell_2\\ 27:\ P_{736} = (29,10,1,0)\ \text{lies on line}\ \ell_2\\ 28:\ P_{736} = (29,10,1,0)\ \text{lies on line}\ \ell_2\\ 29:\ P_{737} = (30,10,1,0)\ \text{lies on line}\ \ell_2\\ 30:\ P_{738} = (31,10,1,0)\ \text{lies on line}\ \ell_2\\ 31:\ P_{739} = (32,10,1,0)\ \text{lies on line}\ \ell_2\\ 32:\ P_{740} = (33,10,1,0)\ \text{lies on line}\ \ell_2\\ 33:\ P_{741} = (34,10,1,0)\ \text{lies on line}\ \ell_2\\ 34:\ P_{742} = (35,10,1,0)\ \text{lies on line}\ \ell_2\\ 35:\ P_{743} = (36,10,1,0)\ \text{lies on line}\ \ell_2\\ 35:\ P_{743} = (36,10,1,0)\ \text{lies on line}\ \ell_2\\ \end{array}$$

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36: P_{744} = (37, 10, 1, 0) lies on line \ell_2
                                                                     90: P_{2463} = (28, 37, 1, 0) lies on line \ell_0
37: P_{745} = (38, 10, 1, 0) lies on line \ell_2
                                                                     91: P_{2464} = (29, 37, 1, 0) lies on line \ell_0
38: P_{746} = (39, 10, 1, 0) lies on line \ell_2
                                                                     92: P_{2465} = (30, 37, 1, 0) lies on line \ell_0
39: P_{747} = (40, 10, 1, 0) lies on line \ell_2
                                                                     93: P_{2466} = (31, 37, 1, 0) lies on line \ell_0
40: P_{748} = (41, 10, 1, 0) lies on line \ell_2
                                                                     94: P_{2467} = (32, 37, 1, 0) lies on line \ell_0
41: P_{749} = (42, 10, 1, 0) lies on line \ell_2
                                                                     95: P_{2468} = (33, 37, 1, 0) lies on line \ell_0
42: P_{750} = (43, 10, 1, 0) lies on line \ell_2
                                                                     96: P_{2469} = (34, 37, 1, 0) lies on line \ell_0
43: P_{751} = (44, 10, 1, 0) lies on line \ell_2
                                                                     97: P_{2470} = (35, 37, 1, 0) lies on line \ell_0
44: P_{752} = (45, 10, 1, 0) lies on line \ell_2
                                                                     98: P_{2471} = (36, 37, 1, 0) lies on line \ell_0
45: P_{753} = (46, 10, 1, 0) lies on line \ell_2
                                                                     99: P_{2472} = (37, 37, 1, 0) lies on line \ell_0
46: P_{754} = (47, 10, 1, 0) lies on line \ell_2
                                                                     100: P_{2473} = (38, 37, 1, 0) lies on line \ell_0
47: P_{755} = (48, 10, 1, 0) lies on line \ell_2
                                                                     101: P_{2474} = (39, 37, 1, 0) lies on line \ell_0
48: P_{756} = (49, 10, 1, 0) lies on line \ell_2
                                                                     102: P_{2475} = (40, 37, 1, 0) lies on line \ell_0
49: P_{757} = (50, 10, 1, 0) lies on line \ell_2
                                                                     103: P_{2476} = (41, 37, 1, 0) lies on line \ell_0
50: P_{758} = (51, 10, 1, 0) lies on line \ell_2
                                                                     104 : P_{2477} = (42, 37, 1, 0) lies on line \ell_0
51: P_{759} = (52, 10, 1, 0) lies on line \ell_2
                                                                     105: P_{2478} = (43, 37, 1, 0) lies on line \ell_0
52: P_{760} = (53, 10, 1, 0) lies on line \ell_2
                                                                     106: P_{2479} = (44, 37, 1, 0) lies on line \ell_0
53: P_{761} = (54, 10, 1, 0) lies on line \ell_2
                                                                     107: P_{2480} = (45, 37, 1, 0) lies on line \ell_0
                                                                     108: P_{2481} = (46, 37, 1, 0) lies on line \ell_0
54: P_{762} = (55, 10, 1, 0) lies on line \ell_2
55: P_{763} = (56, 10, 1, 0) lies on line \ell_2
                                                                     109: P_{2482} = (47, 37, 1, 0) lies on line \ell_0
56: P_{764} = (57, 10, 1, 0) lies on line \ell_2
                                                                     110: P_{2483} = (48, 37, 1, 0) lies on line \ell_0
57: P_{765} = (58, 10, 1, 0) lies on line \ell_2
                                                                     111: P_{2484} = (49, 37, 1, 0) lies on line \ell_0
58: P_{766} = (59, 10, 1, 0) lies on line \ell_2
                                                                     112: P_{2485} = (50, 37, 1, 0) lies on line \ell_0
                                                                     113 : P_{2486} = (51, 37, 1, 0) lies on line \ell_0
59: P_{767} = (60, 10, 1, 0) lies on line \ell_2
60: P_{768} = (61, 10, 1, 0) lies on line \ell_2
                                                                     114: P_{2487} = (52, 37, 1, 0) lies on line \ell_0
61: P_{769} = (62, 10, 1, 0) lies on line \ell_2
                                                                     115: P_{2488} = (53, 37, 1, 0) lies on line \ell_0
62: P_{770} = (63, 10, 1, 0) lies on line \ell_2
                                                                     116: P_{2489} = (54, 37, 1, 0) lies on line \ell_0
63: P_{2436} = (1, 37, 1, 0) lies on line \ell_0
                                                                     117: P_{2490} = (55, 37, 1, 0) lies on line \ell_0
64: P_{2437} = (2, 37, 1, 0) lies on line \ell_0
                                                                     118: P_{2491} = (56, 37, 1, 0) lies on line \ell_0
65: P_{2438} = (3, 37, 1, 0) lies on line \ell_0
                                                                     119: P_{2492} = (57, 37, 1, 0) lies on line \ell_0
66: P_{2439} = (4, 37, 1, 0) lies on line \ell_0
                                                                     120: P_{2493} = (58, 37, 1, 0) lies on line \ell_0
67: P_{2440} = (5, 37, 1, 0) lies on line \ell_0
                                                                     121: P_{2494} = (59, 37, 1, 0) lies on line \ell_0
68: P_{2441} = (6, 37, 1, 0) lies on line \ell_0
                                                                     122: P_{2495} = (60, 37, 1, 0) lies on line \ell_0
                                                                     123 : P_{2496} = (61, 37, 1, 0) lies on line \ell_0
69: P_{2442} = (7, 37, 1, 0) lies on line \ell_0
70: P_{2443} = (8, 37, 1, 0) lies on line \ell_0
                                                                     124: P_{2497} = (62, 37, 1, 0) lies on line \ell_0
71: P_{2444} = (9, 37, 1, 0) lies on line \ell_0
                                                                     125: P_{2498} = (63, 37, 1, 0) lies on line \ell_0
72: P_{2445} = (10, 37, 1, 0) lies on line \ell_0
                                                                     126: P_{3012} = (1, 46, 1, 0) lies on line \ell_1
73: P_{2446} = (11, 37, 1, 0) lies on line \ell_0
                                                                     127: P_{3013} = (2, 46, 1, 0) lies on line \ell_1
74: P_{2447} = (12, 37, 1, 0) lies on line \ell_0
                                                                     128: P_{3014} = (3, 46, 1, 0) lies on line \ell_1
75: P_{2448} = (13, 37, 1, 0) lies on line \ell_0
                                                                     129: P_{3015} = (4, 46, 1, 0) lies on line \ell_1
76: P_{2449} = (14, 37, 1, 0) lies on line \ell_0
                                                                     130: P_{3016} = (5, 46, 1, 0) lies on line \ell_1
77: P_{2450} = (15, 37, 1, 0) lies on line \ell_0
                                                                     131: P_{3017} = (6, 46, 1, 0) lies on line \ell_1
78: P_{2451} = (16, 37, 1, 0) lies on line \ell_0
                                                                     132: P_{3018} = (7, 46, 1, 0) lies on line \ell_1
79: P_{2452} = (17, 37, 1, 0) lies on line \ell_0
                                                                     133: P_{3019} = (8, 46, 1, 0) lies on line \ell_1
80: P_{2453} = (18, 37, 1, 0) lies on line \ell_0
                                                                     134: P_{3020} = (9, 46, 1, 0) lies on line \ell_1
81 : P_{2454} = (19, 37, 1, 0) lies on line \ell_0
                                                                     135: P_{3021} = (10, 46, 1, 0) lies on line \ell_1
82: P_{2455} = (20, 37, 1, 0) lies on line \ell_0
                                                                     136: P_{3022} = (11, 46, 1, 0) lies on line \ell_1
83: P_{2456} = (21, 37, 1, 0) lies on line \ell_0
                                                                     137: P_{3023} = (12, 46, 1, 0) lies on line \ell_1
84: P_{2457} = (22, 37, 1, 0) lies on line \ell_0
                                                                     138: P_{3024} = (13, 46, 1, 0) lies on line \ell_1
85: P_{2458} = (23, 37, 1, 0) lies on line \ell_0
                                                                     139: P_{3025} = (14, 46, 1, 0) lies on line \ell_1
86: P_{2459} = (24, 37, 1, 0) lies on line \ell_0
                                                                     140: P_{3026} = (15, 46, 1, 0) lies on line \ell_1
87: P_{2460} = (25, 37, 1, 0) lies on line \ell_0
                                                                     141: P_{3027} = (16, 46, 1, 0) lies on line \ell_1
                                                                     142 : P_{3028} = (17, 46, 1, 0) lies on line \ell_1
88: P_{2461} = (26, 37, 1, 0) lies on line \ell_0
89: P_{2462} = (27, 37, 1, 0) lies on line \ell_0
                                                                     143: P_{3029} = (18, 46, 1, 0) lies on line \ell_1
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144: P_{3030} = (19, 46, 1, 0) lies on line \ell_1
                                                                     198: P_{22273} = (0, 27, 4, 1) lies on line \ell_5
                                                                     199: P_{23105} = (0, 40, 4, 1) lies on line \ell_3
145: P_{3031} = (20, 46, 1, 0) lies on line \ell_1
146: P_{3032} = (21, 46, 1, 0) lies on line \ell_1
                                                                     200: P_{24065} = (0, 55, 4, 1) lies on line \ell_4
147: P_{3033} = (22, 46, 1, 0) lies on line \ell_1
                                                                     201 : P_{25793} = (0, 18, 5, 1) lies on line \ell_4
148: P_{3034} = (23, 46, 1, 0) lies on line \ell_1
                                                                     202: P_{26817} = (0, 34, 5, 1) lies on line \ell_3
149: P_{3035} = (24, 46, 1, 0) lies on line \ell_1
                                                                     203: P_{28033} = (0, 53, 5, 1) lies on line \ell_5
150: P_{3036} = (25, 46, 1, 0) lies on line \ell_1
                                                                     204: P_{30529} = (0, 28, 6, 1) lies on line \ell_4
151: P_{3037} = (26, 46, 1, 0) lies on line \ell_1
                                                                     205: P_{31169} = (0, 38, 6, 1) lies on line \ell_5
152 : P_{3038} = (27, 46, 1, 0) lies on line \ell_1
                                                                     206: P_{32577} = (0, 60, 6, 1) lies on line \ell_3
153: P_{3039} = (28, 46, 1, 0) lies on line \ell_1
                                                                     207: P_{33345} = (0, 8, 7, 1) lies on line \ell_5
154: P_{3040} = (29, 46, 1, 0) lies on line \ell_1
                                                                     208: P_{36289} = (0, 54, 7, 1) lies on line \ell_3
                                                                     209 : P_{36481} = (0, 57, 7, 1) lies on line \ell_4
155: P_{3041} = (30, 46, 1, 0) lies on line \ell_1
156: P_{3042} = (31, 46, 1, 0) lies on line \ell_1
                                                                     210: P_{37889} = (0, 15, 8, 1) lies on line \ell_4
157: P_{3043} = (32, 46, 1, 0) lies on line \ell_1
                                                                     211: P_{40065} = (0, 49, 8, 1) lies on line \ell_3
158: P_{3044} = (33, 46, 1, 0) lies on line \ell_1
                                                                     212: P_{40385} = (0, 54, 8, 1) lies on line \ell_5
159: P_{3045} = (34, 46, 1, 0) lies on line \ell_1
                                                                     213: P_{42561} = (0, 24, 9, 1) lies on line \ell_5
160: P_{3046} = (35, 46, 1, 0) lies on line \ell_1
                                                                     214: P_{43713} = (0, 42, 9, 1) lies on line \ell_4
161: P_{3047} = (36, 46, 1, 0) lies on line \ell_1
                                                                     215: P_{44801} = (0, 59, 9, 1) lies on line \ell_3
162: P_{3048} = (37, 46, 1, 0) lies on line \ell_1
                                                                     216: P_{45825} = (0, 11, 10, 1) lies on line \ell_5
163: P_{3049} = (38, 46, 1, 0) lies on line \ell_1
                                                                     217: P_{47425} = (0, 36, 10, 1) lies on line \ell_4
164: P_{3050} = (39, 46, 1, 0) lies on line \ell_1
                                                                     218: P_{47489} = (0, 37, 10, 1) lies on line \ell_3
                                                                     219: P_{49281} = (0, 1, 11, 1) lies on line \ell_4
165: P_{3051} = (40, 46, 1, 0) lies on line \ell_1
166: P_{3052} = (41, 46, 1, 0) lies on line \ell_1
                                                                     220: P_{51585} = (0, 37, 11, 1) lies on line \ell_5
167: P_{3053} = (42, 46, 1, 0) lies on line \ell_1
                                                                     221: P_{52225} = (0, 47, 11, 1) lies on line \ell_3
168: P_{3054} = (43, 46, 1, 0) lies on line \ell_1
                                                                     222: P_{54913} = (0, 25, 12, 1) lies on line \ell_3
169: P_{3055} = (44, 46, 1, 0) lies on line \ell_1
                                                                     223: P_{56193} = (0, 45, 12, 1) lies on line \ell_5
170: P_{3056} = (45, 46, 1, 0) lies on line \ell_1
                                                                     224: P_{56897} = (0, 56, 12, 1) lies on line \ell_4
171: P_{3057} = (46, 46, 1, 0) lies on line \ell_1
                                                                     225: P_{57601} = (0, 3, 13, 1) lies on line \ell_5
172: P_{3058} = (47, 46, 1, 0) lies on line \ell_1
                                                                     226: P_{58625} = (0, 19, 13, 1) lies on line \ell_3
173: P_{3059} = (48, 46, 1, 0) lies on line \ell_1
                                                                     227: P_{59265} = (0, 29, 13, 1) lies on line \ell_4
174: P_{3060} = (49, 46, 1, 0) lies on line \ell_1
                                                                     228: P_{62337} = (0, 13, 14, 1) lies on line \ell_3
175: P_{3061} = (50, 46, 1, 0) lies on line \ell_1
                                                                     229: P_{62529} = (0, 16, 14, 1) lies on line \ell_5
176: P_{3062} = (51, 46, 1, 0) lies on line \ell_1
                                                                     230: P_{62721} = (0, 19, 14, 1) lies on line \ell_4
177: P_{3063} = (52, 46, 1, 0) lies on line \ell_1
                                                                     231: P_{66049} = (0, 7, 15, 1) lies on line \ell_3
178: P_{3064} = (53, 46, 1, 0) lies on line \ell_1
                                                                     232: P_{69057} = (0, 54, 15, 1) lies on line \ell_4
179: P_{3065} = (54, 46, 1, 0) lies on line \ell_1
                                                                     233: P_{69569} = (0, 62, 15, 1) lies on line \ell_5
180: P_{3066} = (55, 46, 1, 0) lies on line \ell_1
                                                                     234: P_{69889} = (0, 3, 16, 1) lies on line \ell_3
181 : P_{3067} = (56, 46, 1, 0) lies on line \ell_1
                                                                     235 : P_{70529} = (0, 13, 16, 1) lies on line \ell_5
182 : P_{3068} = (57, 46, 1, 0) lies on line \ell_1
                                                                     236: P_{71617} = (0, 30, 16, 1) lies on line \ell_4
183: P_{3069} = (58, 46, 1, 0) lies on line \ell_1
                                                                     237: P_{74369} = (0, 9, 17, 1) lies on line \ell_3
184: P_{3070} = (59, 46, 1, 0) lies on line \ell_1
                                                                     238: P_{76033} = (0, 35, 17, 1) lies on line \ell_5
185: P_{3071} = (60, 46, 1, 0) lies on line \ell_1
                                                                     239: P_{77569} = (0, 59, 17, 1) lies on line \ell_4
186: P_{3072} = (61, 46, 1, 0) lies on line \ell_1
                                                                     240: P_{79361} = (0, 23, 18, 1) lies on line \ell_3
187: P_{3073} = (62, 46, 1, 0) lies on line \ell_1
                                                                     241: P_{80961} = (0, 48, 18, 1) lies on line \ell_5
188: P_{3074} = (63, 46, 1, 0) lies on line \ell_1
                                                                     242: P_{81281} = (0, 53, 18, 1) lies on line \ell_4
189: P_{8897} = (0, 10, 1, 1) lies on line \ell_3
                                                                     243: P_{83009} = (0, 16, 19, 1) lies on line \ell_4
190: P_{10625} = (0, 37, 1, 1) lies on line \ell_4
                                                                     244: P_{83841} = (0, 29, 19, 1) lies on line \ell_3
191: P_{11201} = (0, 46, 1, 1) lies on line \ell_5
                                                                     245: P_{83905} = (0, 30, 19, 1) lies on line \ell_5
192: P_{13633} = (0, 20, 2, 1) lies on line \ell_3
                                                                     246: P_{87489} = (0, 22, 20, 1) lies on line \ell_5
193: P_{15105} = (0, 43, 2, 1) lies on line \ell_4
                                                                     247: P_{88705} = (0, 41, 20, 1) lies on line \ell_4
                                                                     248: P_{88833} = (0, 43, 20, 1) lies on line \ell_3
194: P_{16257} = (0, 61, 2, 1) lies on line \ell_5
195: P_{17345} = (0, 14, 3, 1) lies on line \ell_4
                                                                     249: P_{90945} = (0, 12, 21, 1) lies on line \ell_4
196 : P_{17665} = (0, 19, 3, 1) lies on line \ell_5
                                                                     250 : P_{92289} = (0, 33, 21, 1) lies on line \ell_3
197: P_{18369} = (0, 30, 3, 1) lies on line \ell_3
                                                                     251: P_{93761} = (0, 56, 21, 1) lies on line \ell_5
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306: P_{170817} = (0, 44, 40, 1) lies on line \ell_5
252: P_{94401} = (0, 2, 22, 1) lies on line \ell_4
                                                                    307: P_{171265} = (0, 51, 40, 1) lies on line \ell_4
253: P_{97025} = (0, 43, 22, 1) lies on line \ell_5
254: P_{98305} = (0, 63, 22, 1) lies on line \ell_3
                                                                    308: P_{171521} = (0, 55, 40, 1) lies on line \ell_3
255: P_{98689} = (0, 5, 23, 1) lies on line \ell_5
                                                                    309: P_{172225} = (0, 2, 41, 1) lies on line \ell_5
256: P_{100865} = (0, 39, 23, 1) lies on line \ell_4
                                                                    310: P_{173505} = (0, 22, 41, 1) lies on line \ell_4
257: P_{101761} = (0, 53, 23, 1) lies on line \ell_3
                                                                    311 : P_{176001} = (0, 61, 41, 1) lies on line \ell_3
258: P_{103553} = (0, 17, 24, 1) lies on line \ell_4
                                                                    312: P_{177281} = (0, 17, 42, 1) lies on line \ell_5
259: P_{105665} = (0, 50, 24, 1) lies on line \ell_3
                                                                    313: P_{177729} = (0, 24, 42, 1) lies on line \ell_4
260: P_{106241} = (0, 59, 24, 1) lies on line \ell_5
                                                                    314: P_{178433} = (0, 35, 42, 1) lies on line \ell_3
261: P_{107905} = (0, 21, 25, 1) lies on line \ell_5
                                                                    315: P_{182913} = (0, 41, 43, 1) lies on line \ell_3
262: P_{109889} = (0, 52, 25, 1) lies on line \ell_4
                                                                    316: P_{184193} = (0, 61, 43, 1) lies on line \ell_4
263: P_{110145} = (0, 56, 25, 1) lies on line \ell_3
                                                                    317: P_{184321} = (0, 63, 43, 1) lies on line \ell_5
264: P_{111041} = (0, 6, 26, 1) lies on line \ell_5
                                                                    318: P_{184641} = (0, 4, 44, 1) lies on line \ell_4
265: P_{113089} = (0, 38, 26, 1) lies on line \ell_3
                                                                    319: P_{186369} = (0, 31, 44, 1) lies on line \ell_3
266: P_{114369} = (0, 58, 26, 1) lies on line \ell_4
                                                                    320: P_{187905} = (0, 55, 44, 1) lies on line \ell_5
267: P_{116737} = (0, 31, 27, 1) lies on line \ell_4
                                                                    321: P_{189825} = (0, 21, 45, 1) lies on line \ell_3
268 : P_{117313} = (0, 40, 27, 1) lies on line \ell_5
                                                                    322: P_{190081} = (0, 25, 45, 1) lies on line \ell_5
269: P_{117569} = (0, 44, 27, 1) lies on line \ell_3
                                                                    323: P_{190593} = (0, 33, 45, 1) lies on line \ell_4
270: P_{120513} = (0, 26, 28, 1) lies on line \ell_3
                                                                    324: P_{193217} = (0, 10, 46, 1) lies on line \ell_5
                                                                    325 : P_{193281} = (0, 11, 46, 1) lies on line \ell_3
271: P_{120897} = (0, 32, 28, 1) lies on line \ell_5
272: P_{121281} = (0, 38, 28, 1) lies on line \ell_4
                                                                    326: P_{195585} = (0, 47, 46, 1) lies on line \ell_4
273: P_{123137} = (0, 3, 29, 1) lies on line \ell_4
                                                                    327: P_{196737} = (0, 1, 47, 1) lies on line \ell_3
274: P_{123841} = (0, 14, 29, 1) lies on line \ell_5
                                                                    328: P_{197313} = (0, 10, 47, 1) lies on line \ell_4
275: P_{123969} = (0, 16, 29, 1) lies on line \ell_3
                                                                    329: P_{198977} = (0, 36, 47, 1) lies on line \ell_5
276: P_{127873} = (0, 13, 30, 1) lies on line \ell_4
                                                                    330: P_{201089} = (0, 5, 48, 1) lies on line \ell_3
277: P_{127937} = (0, 14, 30, 1) lies on line \ell_3
                                                                    331: P_{202241} = (0, 23, 48, 1) lies on line \ell_5
278: P_{128897} = (0, 29, 30, 1) lies on line \ell_5
                                                                    332: P_{202945} = (0, 34, 48, 1) lies on line \ell_4
279: P_{131393} = (0, 4, 31, 1) lies on line \ell_3
                                                                    333: P_{205313} = (0, 7, 49, 1) lies on line \ell_4
280: P_{133697} = (0, 40, 31, 1) lies on line \ell_4
                                                                    334: P_{205825} = (0, 15, 49, 1) lies on line \ell_3
281: P_{134401} = (0, 51, 31, 1) lies on line \ell_5
                                                                    335: P_{208513} = (0, 57, 49, 1) lies on line \ell_5
282 : P_{135617} = (0, 6, 32, 1) lies on line \ell_3
                                                                    336: P_{209537} = (0, 9, 50, 1) lies on line \ell_4
283: P_{136897} = (0, 26, 32, 1) lies on line \ell_5
                                                                    337: P_{210049} = (0, 17, 50, 1) lies on line \ell_3
284: P_{139073} = (0, 60, 32, 1) lies on line \ell_4
                                                                    338: P_{211649} = (0, 42, 50, 1) lies on line \ell_5
285 : P_{140097} = (0, 12, 33, 1) lies on line \ell_3
                                                                    339: P_{213313} = (0, 4, 51, 1) lies on line \ell_5
286: P_{140929} = (0, 25, 33, 1) lies on line \ell_4
                                                                    340: P_{214785} = (0, 27, 51, 1) lies on line \ell_3
287: P_{142657} = (0, 52, 33, 1) lies on line \ell_5
                                                                    341: P_{215873} = (0, 44, 51, 1) lies on line \ell_4
288: P_{144577} = (0, 18, 34, 1) lies on line \ell_3
                                                                    342: P_{217921} = (0, 12, 52, 1) lies on line \ell_5
289: P_{144897} = (0, 23, 34, 1) lies on line \ell_4
                                                                    343: P_{218497} = (0, 21, 52, 1) lies on line \ell_4
                                                                    344: P_{220033} = (0, 45, 52, 1) lies on line \ell_3
290: P_{145921} = (0, 39, 34, 1) lies on line \ell_5
291: P_{148097} = (0, 9, 35, 1) lies on line \ell_5
                                                                    345: P_{223425} = (0, 34, 53, 1) lies on line \ell_5
292: P_{149057} = (0, 24, 35, 1) lies on line \ell_3
                                                                    346: P_{223745} = (0, 39, 53, 1) lies on line \ell_3
293: P_{150721} = (0, 50, 35, 1) lies on line \ell_4
                                                                    347: P_{224321} = (0, 48, 53, 1) lies on line \ell_4
294 : P_{151681} = (0, 1, 36, 1) lies on line \ell_5
                                                                    348: P_{228481} = (0, 49, 54, 1) lies on line \ell_5
295: P_{152321} = (0, 11, 36, 1) lies on line \ell_4
                                                                    349: P_{228993} = (0, 57, 54, 1) lies on line \ell_3
296: P_{154561} = (0, 46, 36, 1) lies on line \ell_3
                                                                    350: P_{229313} = (0, 62, 54, 1) lies on line \ell_4
297: P_{158017} = (0, 36, 37, 1) lies on line \ell_3
                                                                    351: P_{231169} = (0, 27, 55, 1) lies on line \ell_4
298: P_{158657} = (0, 46, 37, 1) lies on line \ell_4
                                                                    352: P_{231425} = (0, 31, 55, 1) lies on line \ell_5
299: P_{158721} = (0, 47, 37, 1) lies on line \ell_5
                                                                    353: P_{232705} = (0, 51, 55, 1) lies on line \ell_3
300: P_{161857} = (0, 32, 38, 1) lies on line \ell_4
                                                                    354: P_{235649} = (0, 33, 56, 1) lies on line \ell_5
301: P_{163521} = (0, 58, 38, 1) lies on line \ell_3
                                                                    355: P_{236417} = (0, 45, 56, 1) lies on line \ell_4
302: P_{163649} = (0, 60, 38, 1) lies on line \ell_5
                                                                    356: P_{236865} = (0, 52, 56, 1) lies on line \ell_3
303: P_{164225} = (0, 5, 39, 1) lies on line \ell_4
                                                                    357: P_{238145} = (0, 8, 57, 1) lies on line \ell_4
304 : P_{165057} = (0, 18, 39, 1) lies on line \ell_5
                                                                    358: P_{238593} = (0, 15, 57, 1) lies on line \ell_5
305: P_{166977} = (0, 48, 39, 1) lies on line \ell_3
                                                                    359: P_{241601} = (0, 62, 57, 1) lies on line \ell_3
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360: P_{242113} = (0, 6, 58, 1) lies on line \ell_4
                                                                    370: P_{255425} = (0, 22, 61, 1) lies on line \ell_3
361: P_{243521} = (0, 28, 58, 1) lies on line \ell_5
                                                                    371: P_{258049} = (0, 63, 61, 1) lies on line \ell_4
362: P_{243777} = (0, 32, 58, 1) lies on line \ell_3
                                                                    372: P_{258561} = (0,7,62,1) lies on line \ell_5
363: P_{248065} = (0, 35, 59, 1) lies on line \ell_4
                                                                    373: P_{258625} = (0, 8, 62, 1) lies on line \ell_3
364: P_{248513} = (0, 42, 59, 1) lies on line \ell_3
                                                                    374: P_{261249} = (0, 49, 62, 1) lies on line \ell_4
365: P_{249025} = (0, 50, 59, 1) lies on line \ell_5
                                                                    375: P_{262337} = (0, 2, 63, 1) lies on line \ell_3
366: P_{251585} = (0, 26, 60, 1) lies on line \ell_4
                                                                    376: P_{263489} = (0, 20, 63, 1) lies on line \ell_4
367: P_{251713} = (0, 28, 60, 1) lies on line \ell_3
                                                                    377: P_{264833} = (0, 41, 63, 1) lies on line \ell_5
368: P_{253633} = (0, 58, 60, 1) lies on line \ell_5
369 : P_{255297} = (0, 20, 61, 1) lies on line \ell_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	1	0
1	1	0	1	0	0	1
2	1	1	0	1	0	0
3	0	0	1	0	1	1
4	1	0	0	1	0	1
	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_0	P_0	P_{2435}

Line 1 intersects

Line	ℓ_0	ℓ_2	ℓ_5
in point	P_0	P_0	P_{3011}

Line 2 intersects

Line	ℓ_0	ℓ_1	ℓ_3
in point	P_0	P_0	P_{707}

 ${\bf Line~3~intersects}$

Line	ℓ_2	ℓ_4	ℓ_5
in point	P_{707}	P_3	P_3

Line 4 intersects

Line	ℓ_0	ℓ_3	ℓ_5
in point	P_{2435}	P_3	P_3

Line 5 intersects

Line	ℓ_1	ℓ_3	ℓ_4
in point	P_{3011}	P_3	P_3

The surface has 4289 points:

Too many to print.