Rank-265 over GF(64)

January 15, 2021

The equation

The equation of the surface is :

$$X_0^3 + X_2^3 + X_3^3 + X_0^2X_1 + X_0^2X_2 + X_0^2X_3 + X_0X_1^2 = 0$$

(1, 0, 1, 1, 1, 1, 1, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0)
The point rank of the equation over GF(64) is -2113396657

General information

Number of lines	7
Number of points	4289
Number of singular points	0
Number of Eckardt points	3
Number of double points	0
Number of single points	446
Number of points off lines	3840
Number of Hesse planes	0
Number of axes	0
Type of points on lines	65^7
Type of lines on points	3^3, 1^{446}, 0^{3840}

Singular Points

The surface has 0 singular points:

The 7 Lines

The lines and their Pluecker coordinates are:

$$\ell_0 = \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix}_{17043457} = \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix}_{17043457} = \mathbf{Pl}(0,0,0,1,0,1)_{278529}$$

$$\ell_1 = \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & \epsilon^{21} \end{bmatrix}_{17043513} = \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 57 \end{bmatrix}_{17043513} = \mathbf{Pl}(0,0,0,57,0,1)_{285641}$$

$$\ell_2 = \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & \epsilon^{42} \end{bmatrix}_{17043512} = \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 56 \end{bmatrix}_{17043512} = \mathbf{Pl}(0,0,0,56,0,1)_{285514}$$

$$\ell_3 = \begin{bmatrix} 1 & \epsilon^{21} & 0 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix}_{241274} = \begin{bmatrix} 1 & 57 & 0 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix}_{241274} = \mathbf{Pl}(0,0,1,1,56,1)_{14958978}$$

$$\ell_4 = \begin{bmatrix} 1 & \epsilon^{42} & 0 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix}_{237113} = \begin{bmatrix} 1 & 56 & 0 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix}_{237113} = \mathbf{Pl}(0,0,1,1,57,1)_{15221058}$$

$$\ell_5 = \begin{bmatrix} 1 & 0 & \epsilon^{21} & \epsilon^{42} \\ 0 & 1 & 1 & 1 \end{bmatrix}_{15150266} = \begin{bmatrix} 1 & 0 & 57 & 56 \\ 0 & 1 & 1 & 1 \end{bmatrix}_{15150266} = \mathbf{Pl}(57,56,56,57,56,1)_{15185330}$$

$$\ell_6 = \begin{bmatrix} 1 & 0 & \epsilon^{42} & \epsilon^{21} \\ 0 & 1 & 1 & 1 \end{bmatrix}_{15412409} = \begin{bmatrix} 1 & 0 & 56 & 57 \\ 0 & 1 & 1 & 1 \end{bmatrix}_{15412409} = \mathbf{Pl}(56,57,57,56,57,1)_{15451252}$$

Rank of lines: (17043457, 17043513, 17043512, 241274, 237113, 15150266, 15412409)
Rank of points on Klein quadric: (278529, 285641, 285514, 14958978, 15221058, 15185330, 15451252)

Eckardt Points

The surface has 3 Eckardt points:
$0 : P_1 = \mathbf{P}(0,1,0,0) = \mathbf{P}(0,1,0,0)$,
$1 : P_{8258} = \mathbf{P}(0,0,1,1) = \mathbf{P}(0,0,1,1)$,
$2 : P_{8322} = \mathbf{P}(0,1,1,1) = \mathbf{P}(0,1,1,1)$.

Double Points

The surface has 0 Double points:
The double points on the surface are:

Single Points

The surface has 446 single points:
The single points on the surface are:

$0 : P_{60} = (56,1,0,0)$ lies on line ℓ_3
$1 : P_{61} = (57,1,0,0)$ lies on line ℓ_4
$2 : P_{3652} = (1,56,1,0)$ lies on line ℓ_5
$3 : P_{3716} = (1,57,1,0)$ lies on line ℓ_6
$4 : P_{7747} = (1,56,0,1)$ lies on line ℓ_6
$5 : P_{7811} = (1,57,0,1)$ lies on line ℓ_5
$6 : P_{8377} = (56,1,1,1)$ lies on line ℓ_3
$7 : P_{8378} = (57,1,1,1)$ lies on line ℓ_4
$8 : P_{8385} = (0,2,1,1)$ lies on line ℓ_0
$9 : P_{8402} = (17,2,1,1)$ lies on line ℓ_3
$10 : P_{8404} = (19,2,1,1)$ lies on line ℓ_4
$11 : P_{8449} = (0,3,1,1)$ lies on line ℓ_0
$12 : P_{8490} = (41,3,1,1)$ lies on line ℓ_3
$13 : P_{8491} = (42,3,1,1)$ lies on line ℓ_4
$14 : P_{8513} = (0,4,1,1)$ lies on line ℓ_0
$15 : P_{8547} = (34,4,1,1)$ lies on line ℓ_3
$16 : P_{8551} = (38,4,1,1)$ lies on line ℓ_4
$17 : P_{8577} = (0,5,1,1)$ lies on line ℓ_0
$18 : P_{8603} = (26,5,1,1)$ lies on line ℓ_3
$19 : P_{8608} = (31,5,1,1)$ lies on line ℓ_4
$20 : P_{8641} = (0,6,1,1)$ lies on line ℓ_0
$21 : P_{8692} = (51,6,1,1)$ lies on line ℓ_3
$22 : P_{8694} = (53,6,1,1)$ lies on line ℓ_4
$23 : P_{8705} = (0,7,1,1)$ lies on line ℓ_0
$24 : P_{8716} = (11,7,1,1)$ lies on line ℓ_3
$25 : P_{8717} = (12,7,1,1)$ lies on line ℓ_4
$26 : P_{8769} = (0,8,1,1)$ lies on line ℓ_0
$27 : P_{8806} = (37,8,1,1)$ lies on line ℓ_3
$28 : P_{8814} = (45,8,1,1)$ lies on line ℓ_4
$29 : P_{8833} = (0,9,1,1)$ lies on line ℓ_0
$30 : P_{8853} = (20,9,1,1)$ lies on line ℓ_4
$31 : P_{8862} = (29,9,1,1)$ lies on line ℓ_3
$32 : P_{8897} = (0,10,1,1)$ lies on line ℓ_0
$33 : P_{8949} = (52,10,1,1)$ lies on line ℓ_3

34 : $P_{8959} = (62, 10, 1, 1)$ lies on line ℓ_4
35 : $P_{8961} = (0, 11, 1, 1)$ lies on line ℓ_0
36 : $P_{8968} = (7, 11, 1, 1)$ lies on line ℓ_4
37 : $P_{8973} = (12, 11, 1, 1)$ lies on line ℓ_3
38 : $P_{9025} = (0, 12, 1, 1)$ lies on line ℓ_0
39 : $P_{9032} = (7, 12, 1, 1)$ lies on line ℓ_3
40 : $P_{9036} = (11, 12, 1, 1)$ lies on line ℓ_4
41 : $P_{9089} = (0, 13, 1, 1)$ lies on line ℓ_0
42 : $P_{9139} = (50, 13, 1, 1)$ lies on line ℓ_4
43 : $P_{9152} = (63, 13, 1, 1)$ lies on line ℓ_3
44 : $P_{9153} = (0, 14, 1, 1)$ lies on line ℓ_0
45 : $P_{9175} = (22, 14, 1, 1)$ lies on line ℓ_3
46 : $P_{9177} = (24, 14, 1, 1)$ lies on line ℓ_4
47 : $P_{9217} = (0, 15, 1, 1)$ lies on line ℓ_0
48 : $P_{9250} = (33, 15, 1, 1)$ lies on line ℓ_4
49 : $P_{9263} = (46, 15, 1, 1)$ lies on line ℓ_3
50 : $P_{9281} = (0, 16, 1, 1)$ lies on line ℓ_0
51 : $P_{9324} = (43, 16, 1, 1)$ lies on line ℓ_3
52 : $P_{9340} = (59, 16, 1, 1)$ lies on line ℓ_4
53 : $P_{9345} = (0, 17, 1, 1)$ lies on line ℓ_0
54 : $P_{9347} = (2, 17, 1, 1)$ lies on line ℓ_4
55 : $P_{9364} = (19, 17, 1, 1)$ lies on line ℓ_3
56 : $P_{9409} = (0, 18, 1, 1)$ lies on line ℓ_0
57 : $P_{9449} = (40, 18, 1, 1)$ lies on line ℓ_4
58 : $P_{9467} = (58, 18, 1, 1)$ lies on line ℓ_3
59 : $P_{9473} = (0, 19, 1, 1)$ lies on line ℓ_0
60 : $P_{9475} = (2, 19, 1, 1)$ lies on line ℓ_3
61 : $P_{9490} = (17, 19, 1, 1)$ lies on line ℓ_4
62 : $P_{9537} = (0, 20, 1, 1)$ lies on line ℓ_0
63 : $P_{9546} = (9, 20, 1, 1)$ lies on line ℓ_3
64 : $P_{9566} = (29, 20, 1, 1)$ lies on line ℓ_4
65 : $P_{9601} = (0, 21, 1, 1)$ lies on line ℓ_0
66 : $P_{9637} = (36, 21, 1, 1)$ lies on line ℓ_4
67 : $P_{9650} = (49, 21, 1, 1)$ lies on line ℓ_3
68 : $P_{9665} = (0, 22, 1, 1)$ lies on line ℓ_0
69 : $P_{9679} = (14, 22, 1, 1)$ lies on line ℓ_4
70 : $P_{9689} = (24, 22, 1, 1)$ lies on line ℓ_3
71 : $P_{9729} = (0, 23, 1, 1)$ lies on line ℓ_0
72 : $P_{9761} = (32, 23, 1, 1)$ lies on line ℓ_3
73 : $P_{9784} = (55, 23, 1, 1)$ lies on line ℓ_4
74 : $P_{9793} = (0, 24, 1, 1)$ lies on line ℓ_0
75 : $P_{9807} = (14, 24, 1, 1)$ lies on line ℓ_3
76 : $P_{9815} = (22, 24, 1, 1)$ lies on line ℓ_4
77 : $P_{9857} = (0, 25, 1, 1)$ lies on line ℓ_0
78 : $P_{9904} = (47, 25, 1, 1)$ lies on line ℓ_4
79 : $P_{9911} = (54, 25, 1, 1)$ lies on line ℓ_3
80 : $P_{9921} = (0, 26, 1, 1)$ lies on line ℓ_0
81 : $P_{9926} = (5, 26, 1, 1)$ lies on line ℓ_4
82 : $P_{9952} = (31, 26, 1, 1)$ lies on line ℓ_3
83 : $P_{9985} = (0, 27, 1, 1)$ lies on line ℓ_0
84 : $P_{10024} = (39, 27, 1, 1)$ lies on line ℓ_3
85 : $P_{10045} = (60, 27, 1, 1)$ lies on line ℓ_4
86 : $P_{10049} = (0, 28, 1, 1)$ lies on line ℓ_0
87 : $P_{10093} = (44, 28, 1, 1)$ lies on line ℓ_3
88 : $P_{10097} = (48, 28, 1, 1)$ lies on line ℓ_4
89 : $P_{10113} = (0, 29, 1, 1)$ lies on line ℓ_0
90 : $P_{10122} = (9, 29, 1, 1)$ lies on line ℓ_4
91 : $P_{10133} = (20, 29, 1, 1)$ lies on line ℓ_3
92 : $P_{10177} = (0, 30, 1, 1)$ lies on line ℓ_0
93 : $P_{10212} = (35, 30, 1, 1)$ lies on line ℓ_4
94 : $P_{10238} = (61, 30, 1, 1)$ lies on line ℓ_3
95 : $P_{10241} = (0, 31, 1, 1)$ lies on line ℓ_0
96 : $P_{10246} = (5, 31, 1, 1)$ lies on line ℓ_3
97 : $P_{10267} = (26, 31, 1, 1)$ lies on line ℓ_4
98 : $P_{10305} = (0, 32, 1, 1)$ lies on line ℓ_0
99 : $P_{10328} = (23, 32, 1, 1)$ lies on line ℓ_4
100 : $P_{10360} = (55, 32, 1, 1)$ lies on line ℓ_3
101 : $P_{10369} = (0, 33, 1, 1)$ lies on line ℓ_0
102 : $P_{10384} = (15, 33, 1, 1)$ lies on line ℓ_3
103 : $P_{10415} = (46, 33, 1, 1)$ lies on line ℓ_4
104 : $P_{10433} = (0, 34, 1, 1)$ lies on line ℓ_0
105 : $P_{10437} = (4, 34, 1, 1)$ lies on line ℓ_4
106 : $P_{10471} = (38, 34, 1, 1)$ lies on line ℓ_3
107 : $P_{10497} = (0, 35, 1, 1)$ lies on line ℓ_0
108 : $P_{10527} = (30, 35, 1, 1)$ lies on line ℓ_3
109 : $P_{10558} = (61, 35, 1, 1)$ lies on line ℓ_4
110 : $P_{10561} = (0, 36, 1, 1)$ lies on line ℓ_0
111 : $P_{10582} = (21, 36, 1, 1)$ lies on line ℓ_3
112 : $P_{10610} = (49, 36, 1, 1)$ lies on line ℓ_4
113 : $P_{10625} = (0, 37, 1, 1)$ lies on line ℓ_0
114 : $P_{10633} = (8, 37, 1, 1)$ lies on line ℓ_4
115 : $P_{10670} = (45, 37, 1, 1)$ lies on line ℓ_3
116 : $P_{10689} = (0, 38, 1, 1)$ lies on line ℓ_0
117 : $P_{10693} = (4, 38, 1, 1)$ lies on line ℓ_3
118 : $P_{10723} = (34, 38, 1, 1)$ lies on line ℓ_4
119 : $P_{10753} = (0, 39, 1, 1)$ lies on line ℓ_0
120 : $P_{10780} = (27, 39, 1, 1)$ lies on line ℓ_4
121 : $P_{10813} = (60, 39, 1, 1)$ lies on line ℓ_3
122 : $P_{10817} = (0, 40, 1, 1)$ lies on line ℓ_0
123 : $P_{10835} = (18, 40, 1, 1)$ lies on line ℓ_3
124 : $P_{10875} = (58, 40, 1, 1)$ lies on line ℓ_4
125 : $P_{10881} = (0, 41, 1, 1)$ lies on line ℓ_0
126 : $P_{10884} = (3, 41, 1, 1)$ lies on line ℓ_4
127 : $P_{10923} = (42, 41, 1, 1)$ lies on line ℓ_3
128 : $P_{10945} = (0, 42, 1, 1)$ lies on line ℓ_0
129 : $P_{10948} = (3, 42, 1, 1)$ lies on line ℓ_3
130 : $P_{10986} = (41, 42, 1, 1)$ lies on line ℓ_4
131 : $P_{11009} = (0, 43, 1, 1)$ lies on line ℓ_0
132 : $P_{11025} = (16, 43, 1, 1)$ lies on line ℓ_4
133 : $P_{11068} = (59, 43, 1, 1)$ lies on line ℓ_3
134 : $P_{11073} = (0, 44, 1, 1)$ lies on line ℓ_0
135 : $P_{11101} = (28, 44, 1, 1)$ lies on line ℓ_4
136 : $P_{11121} = (48, 44, 1, 1)$ lies on line ℓ_3
137 : $P_{11137} = (0, 45, 1, 1)$ lies on line ℓ_0
138 : $P_{11145} = (8, 45, 1, 1)$ lies on line ℓ_3
139 : $P_{11174} = (37, 45, 1, 1)$ lies on line ℓ_4
140 : $P_{11201} = (0, 46, 1, 1)$ lies on line ℓ_0
141 : $P_{11216} = (15, 46, 1, 1)$ lies on line ℓ_4

142 : $P_{11234} = (33, 46, 1, 1)$ lies on line ℓ_3
143 : $P_{11265} = (0, 47, 1, 1)$ lies on line ℓ_0
144 : $P_{11290} = (25, 47, 1, 1)$ lies on line ℓ_3
145 : $P_{11319} = (54, 47, 1, 1)$ lies on line ℓ_4
146 : $P_{11329} = (0, 48, 1, 1)$ lies on line ℓ_0
147 : $P_{11357} = (28, 48, 1, 1)$ lies on line ℓ_3
148 : $P_{11373} = (44, 48, 1, 1)$ lies on line ℓ_4
149 : $P_{11393} = (0, 49, 1, 1)$ lies on line ℓ_0
150 : $P_{11414} = (21, 49, 1, 1)$ lies on line ℓ_4
151 : $P_{11429} = (36, 49, 1, 1)$ lies on line ℓ_3
152 : $P_{11457} = (0, 50, 1, 1)$ lies on line ℓ_0
153 : $P_{11470} = (13, 50, 1, 1)$ lies on line ℓ_3
154 : $P_{11520} = (63, 50, 1, 1)$ lies on line ℓ_4
155 : $P_{11521} = (0, 51, 1, 1)$ lies on line ℓ_0
156 : $P_{11527} = (6, 51, 1, 1)$ lies on line ℓ_4
157 : $P_{11574} = (53, 51, 1, 1)$ lies on line ℓ_3
158 : $P_{11585} = (0, 52, 1, 1)$ lies on line ℓ_0
159 : $P_{11595} = (10, 52, 1, 1)$ lies on line ℓ_4
160 : $P_{11647} = (62, 52, 1, 1)$ lies on line ℓ_3
161 : $P_{11649} = (0, 53, 1, 1)$ lies on line ℓ_0
162 : $P_{11655} = (6, 53, 1, 1)$ lies on line ℓ_3
163 : $P_{11700} = (51, 53, 1, 1)$ lies on line ℓ_4
164 : $P_{11713} = (0, 54, 1, 1)$ lies on line ℓ_0
165 : $P_{11738} = (25, 54, 1, 1)$ lies on line ℓ_4
166 : $P_{11760} = (47, 54, 1, 1)$ lies on line ℓ_3
167 : $P_{11777} = (0, 55, 1, 1)$ lies on line ℓ_0
168 : $P_{11800} = (23, 55, 1, 1)$ lies on line ℓ_3
169 : $P_{11809} = (32, 55, 1, 1)$ lies on line ℓ_4
170 : $P_{11841} = (0, 56, 1, 1)$ lies on line ℓ_0
171 : $P_{11842} = (1, 56, 1, 1)$ lies on line ℓ_4
172 : $P_{11898} = (57, 56, 1, 1)$ lies on line ℓ_3
173 : $P_{11905} = (0, 57, 1, 1)$ lies on line ℓ_0
174 : $P_{11906} = (1, 57, 1, 1)$ lies on line ℓ_3
175 : $P_{11961} = (56, 57, 1, 1)$ lies on line ℓ_4
176 : $P_{11969} = (0, 58, 1, 1)$ lies on line ℓ_0
177 : $P_{11987} = (18, 58, 1, 1)$ lies on line ℓ_4
178 : $P_{12009} = (40, 58, 1, 1)$ lies on line ℓ_3
179 : $P_{12033} = (0, 59, 1, 1)$ lies on line ℓ_0
180 : $P_{12049} = (16, 59, 1, 1)$ lies on line ℓ_3
181 : $P_{12076} = (43, 59, 1, 1)$ lies on line ℓ_4
182 : $P_{12097} = (0, 60, 1, 1)$ lies on line ℓ_0
183 : $P_{12124} = (27, 60, 1, 1)$ lies on line ℓ_3
184 : $P_{12136} = (39, 60, 1, 1)$ lies on line ℓ_4
185 : $P_{12161} = (0, 61, 1, 1)$ lies on line ℓ_0
186 : $P_{12191} = (30, 61, 1, 1)$ lies on line ℓ_4
187 : $P_{12196} = (35, 61, 1, 1)$ lies on line ℓ_3
188 : $P_{12225} = (0, 62, 1, 1)$ lies on line ℓ_0
189 : $P_{12235} = (10, 62, 1, 1)$ lies on line ℓ_3
190 : $P_{12277} = (52, 62, 1, 1)$ lies on line ℓ_4
191 : $P_{12289} = (0, 63, 1, 1)$ lies on line ℓ_0
192 : $P_{12302} = (13, 63, 1, 1)$ lies on line ℓ_4
193 : $P_{12339} = (50, 63, 1, 1)$ lies on line ℓ_3
194 : $P_{14916} = (3, 40, 2, 1)$ lies on line ℓ_5
195 : $P_{15108} = (3, 43, 2, 1)$ lies on line ℓ_6
196 : $P_{17475} = (2, 16, 3, 1)$ lies on line ℓ_5
197 : $P_{17603} = (2, 18, 3, 1)$ lies on line ℓ_6
198 : $P_{22278} = (5, 27, 4, 1)$ lies on line ℓ_5
199 : $P_{22470} = (5, 30, 4, 1)$ lies on line ℓ_6
200 : $P_{26885} = (4, 35, 5, 1)$ lies on line ℓ_5
201 : $P_{27141} = (4, 39, 5, 1)$ lies on line ℓ_6
202 : $P_{29384} = (7, 10, 6, 1)$ lies on line ℓ_5
203 : $P_{29576} = (7, 13, 6, 1)$ lies on line ℓ_6
204 : $P_{36039} = (6, 50, 7, 1)$ lies on line ℓ_5
205 : $P_{36167} = (6, 52, 7, 1)$ lies on line ℓ_6
206 : $P_{38282} = (9, 21, 8, 1)$ lies on line ℓ_6
207 : $P_{38730} = (9, 28, 8, 1)$ lies on line ℓ_5
208 : $P_{43337} = (8, 36, 9, 1)$ lies on line ℓ_5
209 : $P_{43849} = (8, 44, 9, 1)$ lies on line ℓ_6
210 : $P_{45516} = (11, 6, 10, 1)$ lies on line ℓ_6
211 : $P_{45964} = (11, 13, 10, 1)$ lies on line ℓ_5
212 : $P_{52619} = (10, 53, 11, 1)$ lies on line ℓ_5
213 : $P_{53259} = (10, 63, 11, 1)$ lies on line ℓ_6
214 : $P_{56590} = (13, 51, 12, 1)$ lies on line ℓ_6
215 : $P_{57294} = (13, 62, 12, 1)$ lies on line ℓ_5
216 : $P_{57805} = (12, 6, 13, 1)$ lies on line ℓ_5
217 : $P_{58061} = (12, 10, 13, 1)$ lies on line ℓ_6
218 : $P_{63568} = (15, 32, 14, 1)$ lies on line ℓ_6
219 : $P_{64528} = (15, 47, 14, 1)$ lies on line ℓ_5
220 : $P_{67087} = (14, 23, 15, 1)$ lies on line ℓ_5
221 : $P_{67215} = (14, 25, 15, 1)$ lies on line ℓ_6
222 : $P_{69906} = (17, 3, 16, 1)$ lies on line ℓ_6
223 : $P_{70866} = (17, 18, 16, 1)$ lies on line ℓ_5
224 : $P_{76497} = (16, 42, 17, 1)$ lies on line ℓ_5
225 : $P_{77521} = (16, 58, 17, 1)$ lies on line ℓ_6
226 : $P_{78100} = (19, 3, 18, 1)$ lies on line ℓ_5
227 : $P_{78932} = (19, 16, 18, 1)$ lies on line ℓ_6
228 : $P_{84627} = (18, 41, 19, 1)$ lies on line ℓ_6
229 : $P_{85779} = (18, 59, 19, 1)$ lies on line ℓ_5
230 : $P_{88470} = (21, 37, 20, 1)$ lies on line ℓ_6
231 : $P_{89174} = (21, 48, 20, 1)$ lies on line ℓ_5
232 : $P_{90709} = (20, 8, 21, 1)$ lies on line ℓ_5
233 : $P_{91989} = (20, 28, 21, 1)$ lies on line ℓ_6
234 : $P_{96408} = (23, 33, 22, 1)$ lies on line ℓ_5
235 : $P_{97752} = (23, 54, 22, 1)$ lies on line ℓ_6
236 : $P_{99351} = (22, 15, 23, 1)$ lies on line ℓ_6
237 : $P_{99991} = (22, 25, 23, 1)$ lies on line ℓ_5
238 : $P_{105434} = (25, 46, 24, 1)$ lies on line ℓ_6
239 : $P_{106010} = (25, 55, 24, 1)$ lies on line ℓ_5
240 : $P_{107545} = (24, 15, 25, 1)$ lies on line ℓ_5
241 : $P_{108057} = (24, 23, 25, 1)$ lies on line ℓ_6
242 : $P_{113116} = (27, 38, 26, 1)$ lies on line ℓ_5
243 : $P_{114588} = (27, 61, 26, 1)$ lies on line ℓ_6
244 : $P_{115035} = (26, 4, 27, 1)$ lies on line ℓ_6
245 : $P_{116699} = (26, 30, 27, 1)$ lies on line ℓ_5
246 : $P_{119390} = (29, 8, 28, 1)$ lies on line ℓ_6
247 : $P_{120222} = (29, 21, 28, 1)$ lies on line ℓ_5
248 : $P_{125853} = (28, 45, 29, 1)$ lies on line ℓ_5
249 : $P_{126109} = (28, 49, 29, 1)$ lies on line ℓ_6

250 : $P_{127328} = (31, 4, 30, 1)$ lies on line ℓ_5
251 : $P_{128800} = (31, 27, 30, 1)$ lies on line ℓ_6
252 : $P_{133343} = (30, 34, 31, 1)$ lies on line ℓ_6
253 : $P_{135007} = (30, 60, 31, 1)$ lies on line ℓ_5
254 : $P_{136162} = (33, 14, 32, 1)$ lies on line ℓ_5
255 : $P_{138274} = (33, 47, 32, 1)$ lies on line ℓ_6
256 : $P_{140769} = (32, 22, 33, 1)$ lies on line ℓ_6
257 : $P_{142817} = (32, 54, 33, 1)$ lies on line ℓ_5
258 : $P_{145444} = (35, 31, 34, 1)$ lies on line ℓ_5
259 : $P_{147300} = (35, 60, 34, 1)$ lies on line ℓ_6
260 : $P_{147875} = (34, 5, 35, 1)$ lies on line ℓ_6
261 : $P_{150051} = (34, 39, 35, 1)$ lies on line ℓ_5
262 : $P_{152230} = (37, 9, 36, 1)$ lies on line ℓ_6
263 : $P_{154470} = (37, 44, 36, 1)$ lies on line ℓ_5
264 : $P_{157029} = (36, 20, 37, 1)$ lies on line ℓ_5
265 : $P_{158821} = (36, 48, 37, 1)$ lies on line ℓ_6
266 : $P_{161512} = (39, 26, 38, 1)$ lies on line ℓ_6
267 : $P_{163752} = (39, 61, 38, 1)$ lies on line ℓ_5
268 : $P_{164263} = (38, 5, 39, 1)$ lies on line ℓ_5
269 : $P_{166183} = (38, 35, 39, 1)$ lies on line ℓ_6
270 : $P_{168170} = (41, 2, 40, 1)$ lies on line ℓ_6
271 : $P_{170794} = (41, 43, 40, 1)$ lies on line ℓ_5
272 : $P_{173353} = (40, 19, 41, 1)$ lies on line ℓ_5
273 : $P_{175913} = (40, 59, 41, 1)$ lies on line ℓ_6
274 : $P_{177324} = (43, 17, 42, 1)$ lies on line ℓ_6
275 : $P_{179948} = (43, 58, 42, 1)$ lies on line ℓ_5
276 : $P_{180459} = (42, 2, 43, 1)$ lies on line ℓ_5
277 : $P_{182891} = (42, 40, 43, 1)$ lies on line ℓ_6
278 : $P_{185006} = (45, 9, 44, 1)$ lies on line ℓ_5
279 : $P_{186734} = (45, 36, 44, 1)$ lies on line ℓ_6
280 : $P_{190381} = (44, 29, 45, 1)$ lies on line ℓ_6
281 : $P_{191661} = (44, 49, 45, 1)$ lies on line ℓ_5
282 : $P_{194160} = (47, 24, 46, 1)$ lies on line ℓ_5
283 : $P_{196144} = (47, 55, 46, 1)$ lies on line ℓ_6
284 : $P_{197615} = (46, 14, 47, 1)$ lies on line ℓ_6
285 : $P_{198767} = (46, 32, 47, 1)$ lies on line ℓ_5
286 : $P_{202098} = (49, 20, 48, 1)$ lies on line ℓ_6
287 : $P_{203186} = (49, 37, 48, 1)$ lies on line ℓ_5
288 : $P_{206769} = (48, 29, 49, 1)$ lies on line ℓ_5
289 : $P_{207793} = (48, 45, 49, 1)$ lies on line ℓ_6
290 : $P_{209460} = (51, 7, 50, 1)$ lies on line ℓ_6
291 : $P_{212340} = (51, 52, 50, 1)$ lies on line ℓ_5
292 : $P_{213875} = (50, 12, 51, 1)$ lies on line ℓ_5
293 : $P_{217075} = (50, 62, 51, 1)$ lies on line ℓ_6
294 : $P_{217654} = (53, 7, 52, 1)$ lies on line ℓ_5
295 : $P_{220406} = (53, 50, 52, 1)$ lies on line ℓ_6
296 : $P_{222005} = (52, 11, 53, 1)$ lies on line ℓ_6
297 : $P_{225333} = (52, 63, 53, 1)$ lies on line ℓ_5
298 : $P_{226808} = (55, 22, 54, 1)$ lies on line ℓ_5
299 : $P_{227512} = (55, 33, 54, 1)$ lies on line ℓ_6
300 : $P_{231031} = (54, 24, 55, 1)$ lies on line ℓ_6
301 : $P_{232439} = (54, 46, 55, 1)$ lies on line ℓ_5
302 : $P_{233537} = (0, 0, 56, 1)$ lies on line ℓ_1
303 : $P_{233594} = (57, 0, 56, 1)$ lies on line ℓ_5
304 : $P_{233601} = (0, 1, 56, 1)$ lies on line ℓ_1
305 : $P_{233665} = (0, 2, 56, 1)$ lies on line ℓ_1
306 : $P_{233729} = (0, 3, 56, 1)$ lies on line ℓ_1
307 : $P_{233793} = (0, 4, 56, 1)$ lies on line ℓ_1
308 : $P_{233857} = (0, 5, 56, 1)$ lies on line ℓ_1
309 : $P_{233921} = (0, 6, 56, 1)$ lies on line ℓ_1
310 : $P_{233985} = (0, 7, 56, 1)$ lies on line ℓ_1
311 : $P_{234049} = (0, 8, 56, 1)$ lies on line ℓ_1
312 : $P_{234113} = (0, 9, 56, 1)$ lies on line ℓ_1
313 : $P_{234177} = (0, 10, 56, 1)$ lies on line ℓ_1
314 : $P_{234241} = (0, 11, 56, 1)$ lies on line ℓ_1
315 : $P_{234305} = (0, 12, 56, 1)$ lies on line ℓ_1
316 : $P_{234369} = (0, 13, 56, 1)$ lies on line ℓ_1
317 : $P_{234433} = (0, 14, 56, 1)$ lies on line ℓ_1
318 : $P_{234497} = (0, 15, 56, 1)$ lies on line ℓ_1
319 : $P_{234561} = (0, 16, 56, 1)$ lies on line ℓ_1
320 : $P_{234625} = (0, 17, 56, 1)$ lies on line ℓ_1
321 : $P_{234689} = (0, 18, 56, 1)$ lies on line ℓ_1
322 : $P_{234753} = (0, 19, 56, 1)$ lies on line ℓ_1
323 : $P_{234817} = (0, 20, 56, 1)$ lies on line ℓ_1
324 : $P_{234881} = (0, 21, 56, 1)$ lies on line ℓ_1
325 : $P_{234945} = (0, 22, 56, 1)$ lies on line ℓ_1
326 : $P_{235009} = (0, 23, 56, 1)$ lies on line ℓ_1
327 : $P_{235073} = (0, 24, 56, 1)$ lies on line ℓ_1
328 : $P_{235137} = (0, 25, 56, 1)$ lies on line ℓ_1
329 : $P_{235201} = (0, 26, 56, 1)$ lies on line ℓ_1
330 : $P_{235265} = (0, 27, 56, 1)$ lies on line ℓ_1
331 : $P_{235329} = (0, 28, 56, 1)$ lies on line ℓ_1
332 : $P_{235393} = (0, 29, 56, 1)$ lies on line ℓ_1
333 : $P_{235457} = (0, 30, 56, 1)$ lies on line ℓ_1
334 : $P_{235521} = (0, 31, 56, 1)$ lies on line ℓ_1
335 : $P_{235585} = (0, 32, 56, 1)$ lies on line ℓ_1
336 : $P_{235649} = (0, 33, 56, 1)$ lies on line ℓ_1
337 : $P_{235713} = (0, 34, 56, 1)$ lies on line ℓ_1
338 : $P_{235777} = (0, 35, 56, 1)$ lies on line ℓ_1
339 : $P_{235841} = (0, 36, 56, 1)$ lies on line ℓ_1
340 : $P_{235905} = (0, 37, 56, 1)$ lies on line ℓ_1
341 : $P_{235969} = (0, 38, 56, 1)$ lies on line ℓ_1
342 : $P_{236033} = (0, 39, 56, 1)$ lies on line ℓ_1
343 : $P_{236097} = (0, 40, 56, 1)$ lies on line ℓ_1
344 : $P_{236161} = (0, 41, 56, 1)$ lies on line ℓ_1
345 : $P_{236225} = (0, 42, 56, 1)$ lies on line ℓ_1
346 : $P_{236289} = (0, 43, 56, 1)$ lies on line ℓ_1
347 : $P_{236353} = (0, 44, 56, 1)$ lies on line ℓ_1
348 : $P_{236417} = (0, 45, 56, 1)$ lies on line ℓ_1
349 : $P_{236481} = (0, 46, 56, 1)$ lies on line ℓ_1
350 : $P_{236545} = (0, 47, 56, 1)$ lies on line ℓ_1
351 : $P_{236609} = (0, 48, 56, 1)$ lies on line ℓ_1
352 : $P_{236673} = (0, 49, 56, 1)$ lies on line ℓ_1
353 : $P_{236737} = (0, 50, 56, 1)$ lies on line ℓ_1
354 : $P_{236801} = (0, 51, 56, 1)$ lies on line ℓ_1
355 : $P_{236865} = (0, 52, 56, 1)$ lies on line ℓ_1
356 : $P_{236929} = (0, 53, 56, 1)$ lies on line ℓ_1
357 : $P_{236993} = (0, 54, 56, 1)$ lies on line ℓ_1

358 : $P_{237057} = (0, 55, 56, 1)$ lies on line ℓ_1
359 : $P_{237121} = (0, 56, 56, 1)$ lies on line ℓ_1
360 : $P_{237185} = (0, 57, 56, 1)$ lies on line ℓ_1
361 : $P_{237242} = (57, 57, 56, 1)$ lies on line ℓ_6
362 : $P_{237249} = (0, 58, 56, 1)$ lies on line ℓ_1
363 : $P_{237313} = (0, 59, 56, 1)$ lies on line ℓ_1
364 : $P_{237377} = (0, 60, 56, 1)$ lies on line ℓ_1
365 : $P_{237441} = (0, 61, 56, 1)$ lies on line ℓ_1
366 : $P_{237505} = (0, 62, 56, 1)$ lies on line ℓ_1
367 : $P_{237569} = (0, 63, 56, 1)$ lies on line ℓ_1
368 : $P_{237633} = (0, 0, 57, 1)$ lies on line ℓ_2
369 : $P_{237689} = (56, 0, 57, 1)$ lies on line ℓ_6
370 : $P_{237697} = (0, 1, 57, 1)$ lies on line ℓ_2
371 : $P_{237761} = (0, 2, 57, 1)$ lies on line ℓ_2
372 : $P_{237825} = (0, 3, 57, 1)$ lies on line ℓ_2
373 : $P_{237889} = (0, 4, 57, 1)$ lies on line ℓ_2
374 : $P_{237953} = (0, 5, 57, 1)$ lies on line ℓ_2
375 : $P_{238017} = (0, 6, 57, 1)$ lies on line ℓ_2
376 : $P_{238081} = (0, 7, 57, 1)$ lies on line ℓ_2
377 : $P_{238145} = (0, 8, 57, 1)$ lies on line ℓ_2
378 : $P_{238209} = (0, 9, 57, 1)$ lies on line ℓ_2
379 : $P_{238273} = (0, 10, 57, 1)$ lies on line ℓ_2
380 : $P_{238337} = (0, 11, 57, 1)$ lies on line ℓ_2
381 : $P_{238401} = (0, 12, 57, 1)$ lies on line ℓ_2
382 : $P_{238465} = (0, 13, 57, 1)$ lies on line ℓ_2
383 : $P_{238529} = (0, 14, 57, 1)$ lies on line ℓ_2
384 : $P_{238593} = (0, 15, 57, 1)$ lies on line ℓ_2
385 : $P_{238657} = (0, 16, 57, 1)$ lies on line ℓ_2
386 : $P_{238721} = (0, 17, 57, 1)$ lies on line ℓ_2
387 : $P_{238785} = (0, 18, 57, 1)$ lies on line ℓ_2
388 : $P_{238849} = (0, 19, 57, 1)$ lies on line ℓ_2
389 : $P_{238913} = (0, 20, 57, 1)$ lies on line ℓ_2
390 : $P_{238977} = (0, 21, 57, 1)$ lies on line ℓ_2
391 : $P_{239041} = (0, 22, 57, 1)$ lies on line ℓ_2
392 : $P_{239105} = (0, 23, 57, 1)$ lies on line ℓ_2
393 : $P_{239169} = (0, 24, 57, 1)$ lies on line ℓ_2
394 : $P_{239233} = (0, 25, 57, 1)$ lies on line ℓ_2
395 : $P_{239297} = (0, 26, 57, 1)$ lies on line ℓ_2
396 : $P_{239361} = (0, 27, 57, 1)$ lies on line ℓ_2
397 : $P_{239425} = (0, 28, 57, 1)$ lies on line ℓ_2
398 : $P_{239489} = (0, 29, 57, 1)$ lies on line ℓ_2
399 : $P_{239553} = (0, 30, 57, 1)$ lies on line ℓ_2
400 : $P_{239617} = (0, 31, 57, 1)$ lies on line ℓ_2
401 : $P_{239681} = (0, 32, 57, 1)$ lies on line ℓ_2
402 : $P_{239745} = (0, 33, 57, 1)$ lies on line ℓ_2
403 : $P_{239809} = (0, 34, 57, 1)$ lies on line ℓ_2
404 : $P_{239873} = (0, 35, 57, 1)$ lies on line ℓ_2
405 : $P_{239937} = (0, 36, 57, 1)$ lies on line ℓ_2
406 : $P_{240001} = (0, 37, 57, 1)$ lies on line ℓ_2
407 : $P_{240065} = (0, 38, 57, 1)$ lies on line ℓ_2
408 : $P_{240129} = (0, 39, 57, 1)$ lies on line ℓ_2
409 : $P_{240193} = (0, 40, 57, 1)$ lies on line ℓ_2
410 : $P_{240257} = (0, 41, 57, 1)$ lies on line ℓ_2
411 : $P_{240321} = (0, 42, 57, 1)$ lies on line ℓ_2
412 : $P_{240385} = (0, 43, 57, 1)$ lies on line ℓ_2
413 : $P_{240449} = (0, 44, 57, 1)$ lies on line ℓ_2
414 : $P_{240513} = (0, 45, 57, 1)$ lies on line ℓ_2
415 : $P_{240577} = (0, 46, 57, 1)$ lies on line ℓ_2
416 : $P_{240641} = (0, 47, 57, 1)$ lies on line ℓ_2
417 : $P_{240705} = (0, 48, 57, 1)$ lies on line ℓ_2
418 : $P_{240769} = (0, 49, 57, 1)$ lies on line ℓ_2
419 : $P_{240833} = (0, 50, 57, 1)$ lies on line ℓ_2
420 : $P_{240897} = (0, 51, 57, 1)$ lies on line ℓ_2
421 : $P_{240961} = (0, 52, 57, 1)$ lies on line ℓ_2
422 : $P_{241025} = (0, 53, 57, 1)$ lies on line ℓ_2
423 : $P_{241089} = (0, 54, 57, 1)$ lies on line ℓ_2
424 : $P_{241153} = (0, 55, 57, 1)$ lies on line ℓ_2
425 : $P_{241217} = (0, 56, 57, 1)$ lies on line ℓ_2
426 : $P_{241273} = (56, 56, 57, 1)$ lies on line ℓ_5
427 : $P_{241281} = (0, 57, 57, 1)$ lies on line ℓ_2
428 : $P_{241345} = (0, 58, 57, 1)$ lies on line ℓ_2
429 : $P_{241409} = (0, 59, 57, 1)$ lies on line ℓ_2
430 : $P_{241473} = (0, 60, 57, 1)$ lies on line ℓ_2
431 : $P_{241537} = (0, 61, 57, 1)$ lies on line ℓ_2
432 : $P_{241601} = (0, 62, 57, 1)$ lies on line ℓ_2
433 : $P_{241665} = (0, 63, 57, 1)$ lies on line ℓ_2
434 : $P_{242876} = (59, 17, 58, 1)$ lies on line ℓ_5
435 : $P_{244476} = (59, 42, 58, 1)$ lies on line ℓ_6
436 : $P_{247099} = (58, 19, 59, 1)$ lies on line ℓ_6
437 : $P_{248507} = (58, 41, 59, 1)$ lies on line ℓ_5
438 : $P_{251966} = (61, 31, 60, 1)$ lies on line ℓ_6
439 : $P_{252158} = (61, 34, 60, 1)$ lies on line ℓ_5
440 : $P_{255741} = (60, 26, 61, 1)$ lies on line ℓ_5
441 : $P_{256509} = (60, 38, 61, 1)$ lies on line ℓ_6
442 : $P_{258944} = (63, 12, 62, 1)$ lies on line ℓ_6
443 : $P_{261440} = (63, 51, 62, 1)$ lies on line ℓ_5
444 : $P_{262975} = (62, 11, 63, 1)$ lies on line ℓ_5
445 : $P_{265663} = (62, 53, 63, 1)$ lies on line ℓ_6

The single points on the surface are:

Points on surface but on no line

The surface has 3840 points not on any line:
Too many to print.

Line Intersection Graph

	0 1 2 3 4 5 6
0	0 1 1 1 1 1 1
1	1 0 1 0 0 0 0
2	1 1 0 0 0 0 0
3	1 0 0 0 1 0 0
4	1 0 0 1 0 0 0
5	1 0 0 0 0 0 1
6	1 0 0 0 0 1 0

Neighbor sets in the line intersection graph:
Line 0 intersects

Line	ℓ_1	ℓ_2	ℓ_3	ℓ_4	ℓ_5	ℓ_6
in point	P_1	P_1	P_{8258}	P_{8258}	P_{8322}	P_{8322}

Line 1 intersects

Line	ℓ_0	ℓ_2
in point	P_1	P_1

Line 2 intersects

Line	ℓ_0	ℓ_1
in point	P_1	P_1

Line 3 intersects

Line	ℓ_0	ℓ_4
in point	P_{8258}	P_{8258}

Line 4 intersects

Line	ℓ_0	ℓ_3
in point	P_{8258}	P_{8258}

Line 5 intersects

Line	ℓ_0	ℓ_6
in point	P_{8322}	P_{8322}

Line 6 intersects

Line	ℓ_0	ℓ_5
in point	P_{8322}	P_{8322}

The surface has 4289 points:
Too many to print.