

Rank-74276 over GF(64)

January 15, 2021

The equation

The equation of the surface is :

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

(1, 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 -2130440122

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:

$$\ell_0 = \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{17043456} = \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{17043456} = \mathbf{P}\mathbf{l}(0, 0, 0, 0, 0, 1)_{270401}$$

$$\begin{aligned}
\ell_1 &= \begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{17047616} = \begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{17047616} = \mathbf{PI}(0, 1, 0, 0, 0, 0)_1 \\
\ell_2 &= \begin{bmatrix} 1 & 1 & 0 & \epsilon^{21} \\ 0 & 0 & 1 & 0 \end{bmatrix}_{15187585} = \begin{bmatrix} 1 & 1 & 0 & 57 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{15187585} = \mathbf{PI}(0, 57, 1, 0, 0, 1)_{270648} \\
\ell_3 &= \begin{bmatrix} 1 & 1 & 0 & \epsilon^{42} \\ 0 & 0 & 1 & 0 \end{bmatrix}_{14921281} = \begin{bmatrix} 1 & 1 & 0 & 56 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{14921281} = \mathbf{PI}(0, 56, 1, 0, 0, 1)_{270647} \\
\ell_4 &= \begin{bmatrix} 1 & 0 & \epsilon^{21} & \epsilon^{21} \\ 0 & 1 & \epsilon^{21} & 0 \end{bmatrix}_{15416562} = \begin{bmatrix} 1 & 0 & 57 & 57 \\ 0 & 1 & 57 & 0 \end{bmatrix}_{15416562} = \mathbf{PI}(56, 57, 1, 1, 0, 1)_{286585} \\
\ell_5 &= \begin{bmatrix} 1 & 0 & \epsilon^{42} & \epsilon^{42} \\ 0 & 1 & \epsilon^{42} & 0 \end{bmatrix}_{15146096} = \begin{bmatrix} 1 & 0 & 56 & 56 \\ 0 & 1 & 56 & 0 \end{bmatrix}_{15146096} = \mathbf{PI}(57, 56, 1, 1, 0, 1)_{286586}
\end{aligned}$$

Rank of lines: (17043456, 17047616, 15187585, 14921281, 15416562, 15146096)

Rank of points on Klein quadric: (270401, 1, 270648, 270647, 286585, 286586)

Eckardt Points

The surface has 0 Eckardt points:

Double Points

The surface has 4 Double points:

The double points on the surface are:

$$\begin{aligned}
P_{3651} &= (0, 56, 1, 0) = \ell_0 \cap \ell_4 \\
P_{3715} &= (0, 57, 1, 0) = \ell_0 \cap \ell_5 \\
P_{7802} &= (56, 56, 0, 1) = \ell_2 \cap \ell_4
\end{aligned}$$

$$P_{7867} = (57, 57, 0, 1) = \ell_3 \cap \ell_5$$

Single Points

The surface has 378 single points:

The single points on the surface are:

0 : $P_1 = (0, 1, 0, 0)$ lies on line ℓ_0
1 : $P_3 = (0, 0, 0, 1)$ lies on line ℓ_1
2 : $P_{131} = (0, 1, 1, 0)$ lies on line ℓ_0
3 : $P_{195} = (0, 2, 1, 0)$ lies on line ℓ_0
4 : $P_{259} = (0, 3, 1, 0)$ lies on line ℓ_0
5 : $P_{323} = (0, 4, 1, 0)$ lies on line ℓ_0
6 : $P_{387} = (0, 5, 1, 0)$ lies on line ℓ_0
7 : $P_{451} = (0, 6, 1, 0)$ lies on line ℓ_0
8 : $P_{515} = (0, 7, 1, 0)$ lies on line ℓ_0
9 : $P_{579} = (0, 8, 1, 0)$ lies on line ℓ_0
10 : $P_{643} = (0, 9, 1, 0)$ lies on line ℓ_0
11 : $P_{707} = (0, 10, 1, 0)$ lies on line ℓ_0
12 : $P_{771} = (0, 11, 1, 0)$ lies on line ℓ_0
13 : $P_{835} = (0, 12, 1, 0)$ lies on line ℓ_0
14 : $P_{899} = (0, 13, 1, 0)$ lies on line ℓ_0
15 : $P_{963} = (0, 14, 1, 0)$ lies on line ℓ_0
16 : $P_{1027} = (0, 15, 1, 0)$ lies on line ℓ_0

17 : $P_{1091} = (0, 16, 1, 0)$ lies on line ℓ_0
18 : $P_{1155} = (0, 17, 1, 0)$ lies on line ℓ_0
19 : $P_{1219} = (0, 18, 1, 0)$ lies on line ℓ_0
20 : $P_{1283} = (0, 19, 1, 0)$ lies on line ℓ_0
21 : $P_{1347} = (0, 20, 1, 0)$ lies on line ℓ_0
22 : $P_{1411} = (0, 21, 1, 0)$ lies on line ℓ_0
23 : $P_{1475} = (0, 22, 1, 0)$ lies on line ℓ_0
24 : $P_{1539} = (0, 23, 1, 0)$ lies on line ℓ_0
25 : $P_{1603} = (0, 24, 1, 0)$ lies on line ℓ_0
26 : $P_{1667} = (0, 25, 1, 0)$ lies on line ℓ_0
27 : $P_{1731} = (0, 26, 1, 0)$ lies on line ℓ_0
28 : $P_{1795} = (0, 27, 1, 0)$ lies on line ℓ_0
29 : $P_{1859} = (0, 28, 1, 0)$ lies on line ℓ_0
30 : $P_{1923} = (0, 29, 1, 0)$ lies on line ℓ_0
31 : $P_{1987} = (0, 30, 1, 0)$ lies on line ℓ_0
32 : $P_{2051} = (0, 31, 1, 0)$ lies on line ℓ_0
33 : $P_{2115} = (0, 32, 1, 0)$ lies on line ℓ_0

- 34 : $P_{2179} = (0, 33, 1, 0)$ lies on line ℓ_0
 35 : $P_{2243} = (0, 34, 1, 0)$ lies on line ℓ_0
 36 : $P_{2307} = (0, 35, 1, 0)$ lies on line ℓ_0
 37 : $P_{2371} = (0, 36, 1, 0)$ lies on line ℓ_0
 38 : $P_{2435} = (0, 37, 1, 0)$ lies on line ℓ_0
 39 : $P_{2499} = (0, 38, 1, 0)$ lies on line ℓ_0
 40 : $P_{2563} = (0, 39, 1, 0)$ lies on line ℓ_0
 41 : $P_{2627} = (0, 40, 1, 0)$ lies on line ℓ_0
 42 : $P_{2691} = (0, 41, 1, 0)$ lies on line ℓ_0
 43 : $P_{2755} = (0, 42, 1, 0)$ lies on line ℓ_0
 44 : $P_{2819} = (0, 43, 1, 0)$ lies on line ℓ_0
 45 : $P_{2883} = (0, 44, 1, 0)$ lies on line ℓ_0
 46 : $P_{2947} = (0, 45, 1, 0)$ lies on line ℓ_0
 47 : $P_{3011} = (0, 46, 1, 0)$ lies on line ℓ_0
 48 : $P_{3075} = (0, 47, 1, 0)$ lies on line ℓ_0
 49 : $P_{3139} = (0, 48, 1, 0)$ lies on line ℓ_0
 50 : $P_{3203} = (0, 49, 1, 0)$ lies on line ℓ_0
 51 : $P_{3267} = (0, 50, 1, 0)$ lies on line ℓ_0
 52 : $P_{3331} = (0, 51, 1, 0)$ lies on line ℓ_0
 53 : $P_{3395} = (0, 52, 1, 0)$ lies on line ℓ_0
 54 : $P_{3459} = (0, 53, 1, 0)$ lies on line ℓ_0
 55 : $P_{3523} = (0, 54, 1, 0)$ lies on line ℓ_0
 56 : $P_{3587} = (0, 55, 1, 0)$ lies on line ℓ_0
 57 : $P_{3779} = (0, 58, 1, 0)$ lies on line ℓ_0
 58 : $P_{3843} = (0, 59, 1, 0)$ lies on line ℓ_0
 59 : $P_{3907} = (0, 60, 1, 0)$ lies on line ℓ_0
 60 : $P_{3971} = (0, 61, 1, 0)$ lies on line ℓ_0
 61 : $P_{4035} = (0, 62, 1, 0)$ lies on line ℓ_0
 62 : $P_{4099} = (0, 63, 1, 0)$ lies on line ℓ_0
 63 : $P_{8258} = (0, 0, 1, 1)$ lies on line ℓ_1
 64 : $P_{8314} = (56, 0, 1, 1)$ lies on line ℓ_4
 65 : $P_{8315} = (57, 0, 1, 1)$ lies on line ℓ_5
 66 : $P_{11897} = (56, 56, 1, 1)$ lies on line ℓ_2
 67 : $P_{11962} = (57, 57, 1, 1)$ lies on line ℓ_3
 68 : $P_{12353} = (0, 0, 2, 1)$ lies on line ℓ_1
 69 : $P_{15033} = (56, 41, 2, 1)$ lies on line ℓ_4
 70 : $P_{15098} = (57, 42, 2, 1)$ lies on line ℓ_5
 71 : $P_{15993} = (56, 56, 2, 1)$ lies on line ℓ_2
 72 : $P_{16058} = (57, 57, 2, 1)$ lies on line ℓ_3
 73 : $P_{16449} = (0, 0, 3, 1)$ lies on line ℓ_1
 74 : $P_{17593} = (56, 17, 3, 1)$ lies on line ℓ_4
 75 : $P_{17722} = (57, 19, 3, 1)$ lies on line ℓ_5
 76 : $P_{20089} = (56, 56, 3, 1)$ lies on line ℓ_2
 77 : $P_{20154} = (57, 57, 3, 1)$ lies on line ℓ_3
 78 : $P_{20545} = (0, 0, 4, 1)$ lies on line ℓ_1
 79 : $P_{22265} = (56, 26, 4, 1)$ lies on line ℓ_4
 80 : $P_{22586} = (57, 31, 4, 1)$ lies on line ℓ_5
 81 : $P_{24185} = (56, 56, 4, 1)$ lies on line ℓ_2
 82 : $P_{24250} = (57, 57, 4, 1)$ lies on line ℓ_3
 83 : $P_{24641} = (0, 0, 5, 1)$ lies on line ℓ_1
 84 : $P_{26873} = (56, 34, 5, 1)$ lies on line ℓ_4
 85 : $P_{27130} = (57, 38, 5, 1)$ lies on line ℓ_5
 86 : $P_{28281} = (56, 56, 5, 1)$ lies on line ℓ_2
 87 : $P_{28346} = (57, 57, 5, 1)$ lies on line ℓ_3
 88 : $P_{28737} = (0, 0, 6, 1)$ lies on line ℓ_1
 89 : $P_{29497} = (56, 11, 6, 1)$ lies on line ℓ_4
 90 : $P_{29562} = (57, 12, 6, 1)$ lies on line ℓ_5
 91 : $P_{32377} = (56, 56, 6, 1)$ lies on line ℓ_2
 92 : $P_{32442} = (57, 57, 6, 1)$ lies on line ℓ_3
 93 : $P_{32833} = (0, 0, 7, 1)$ lies on line ℓ_1
 94 : $P_{36153} = (56, 51, 7, 1)$ lies on line ℓ_4
 95 : $P_{36282} = (57, 53, 7, 1)$ lies on line ℓ_5
 96 : $P_{36473} = (56, 56, 7, 1)$ lies on line ℓ_2
 97 : $P_{36538} = (57, 57, 7, 1)$ lies on line ℓ_3
 98 : $P_{36929} = (0, 0, 8, 1)$ lies on line ℓ_1
 99 : $P_{38266} = (57, 20, 8, 1)$ lies on line ℓ_5
 100 : $P_{38841} = (56, 29, 8, 1)$ lies on line ℓ_4
 101 : $P_{40569} = (56, 56, 8, 1)$ lies on line ℓ_2
 102 : $P_{40634} = (57, 57, 8, 1)$ lies on line ℓ_3
 103 : $P_{41025} = (0, 0, 9, 1)$ lies on line ℓ_1
 104 : $P_{43449} = (56, 37, 9, 1)$ lies on line ℓ_4
 105 : $P_{43962} = (57, 45, 9, 1)$ lies on line ℓ_5
 106 : $P_{44665} = (56, 56, 9, 1)$ lies on line ℓ_2
 107 : $P_{44730} = (57, 57, 9, 1)$ lies on line ℓ_3
 108 : $P_{45121} = (0, 0, 10, 1)$ lies on line ℓ_1
 109 : $P_{45626} = (57, 7, 10, 1)$ lies on line ℓ_5
 110 : $P_{45945} = (56, 12, 10, 1)$ lies on line ℓ_4
 111 : $P_{48761} = (56, 56, 10, 1)$ lies on line ℓ_2
 112 : $P_{48826} = (57, 57, 10, 1)$ lies on line ℓ_3
 113 : $P_{49217} = (0, 0, 11, 1)$ lies on line ℓ_1
 114 : $P_{52601} = (56, 52, 11, 1)$ lies on line ℓ_4
 115 : $P_{52857} = (56, 56, 11, 1)$ lies on line ℓ_2
 116 : $P_{52922} = (57, 57, 11, 1)$ lies on line ℓ_3
 117 : $P_{53242} = (57, 62, 11, 1)$ lies on line ℓ_5
 118 : $P_{53313} = (0, 0, 12, 1)$ lies on line ℓ_1
 119 : $P_{56570} = (57, 50, 12, 1)$ lies on line ℓ_5
 120 : $P_{56953} = (56, 56, 12, 1)$ lies on line ℓ_2
 121 : $P_{57018} = (57, 57, 12, 1)$ lies on line ℓ_3
 122 : $P_{57401} = (56, 63, 12, 1)$ lies on line ℓ_4
 123 : $P_{57409} = (0, 0, 13, 1)$ lies on line ℓ_1
 124 : $P_{57913} = (56, 7, 13, 1)$ lies on line ℓ_4
 125 : $P_{58170} = (57, 11, 13, 1)$ lies on line ℓ_5
 126 : $P_{61049} = (56, 56, 13, 1)$ lies on line ℓ_2
 127 : $P_{61114} = (57, 57, 13, 1)$ lies on line ℓ_3
 128 : $P_{61505} = (0, 0, 14, 1)$ lies on line ℓ_1
 129 : $P_{63674} = (57, 33, 14, 1)$ lies on line ℓ_5
 130 : $P_{64505} = (56, 46, 14, 1)$ lies on line ℓ_4
 131 : $P_{65145} = (56, 56, 14, 1)$ lies on line ℓ_2
 132 : $P_{65210} = (57, 57, 14, 1)$ lies on line ℓ_3
 133 : $P_{65601} = (0, 0, 15, 1)$ lies on line ℓ_1
 134 : $P_{67065} = (56, 22, 15, 1)$ lies on line ℓ_4
 135 : $P_{67194} = (57, 24, 15, 1)$ lies on line ℓ_5
 136 : $P_{69241} = (56, 56, 15, 1)$ lies on line ℓ_2
 137 : $P_{69306} = (57, 57, 15, 1)$ lies on line ℓ_3
 138 : $P_{69697} = (0, 0, 16, 1)$ lies on line ℓ_1
 139 : $P_{69882} = (57, 2, 16, 1)$ lies on line ℓ_5
 140 : $P_{70969} = (56, 19, 16, 1)$ lies on line ℓ_4
 141 : $P_{73337} = (56, 56, 16, 1)$ lies on line ℓ_2

142 : $P_{73402} = (57, 57, 16, 1)$ lies on line ℓ_3
 143 : $P_{73793} = (0, 0, 17, 1)$ lies on line ℓ_1
 144 : $P_{76601} = (56, 43, 17, 1)$ lies on line ℓ_4
 145 : $P_{77433} = (56, 56, 17, 1)$ lies on line ℓ_2
 146 : $P_{77498} = (57, 57, 17, 1)$ lies on line ℓ_3
 147 : $P_{77626} = (57, 59, 17, 1)$ lies on line ℓ_5
 148 : $P_{77889} = (0, 0, 18, 1)$ lies on line ℓ_1
 149 : $P_{78073} = (56, 2, 18, 1)$ lies on line ℓ_4
 150 : $P_{79034} = (57, 17, 18, 1)$ lies on line ℓ_5
 151 : $P_{81529} = (56, 56, 18, 1)$ lies on line ℓ_2
 152 : $P_{81594} = (57, 57, 18, 1)$ lies on line ℓ_3
 153 : $P_{81985} = (0, 0, 19, 1)$ lies on line ℓ_1
 154 : $P_{84602} = (57, 40, 19, 1)$ lies on line ℓ_5
 155 : $P_{85625} = (56, 56, 19, 1)$ lies on line ℓ_2
 156 : $P_{85690} = (57, 57, 19, 1)$ lies on line ℓ_3
 157 : $P_{85753} = (56, 58, 19, 1)$ lies on line ℓ_4
 158 : $P_{86081} = (0, 0, 20, 1)$ lies on line ℓ_1
 159 : $P_{88442} = (57, 36, 20, 1)$ lies on line ℓ_5
 160 : $P_{89273} = (56, 49, 20, 1)$ lies on line ℓ_4
 161 : $P_{89721} = (56, 56, 20, 1)$ lies on line ℓ_2
 162 : $P_{89786} = (57, 57, 20, 1)$ lies on line ℓ_3
 163 : $P_{90177} = (0, 0, 21, 1)$ lies on line ℓ_1
 164 : $P_{90809} = (56, 9, 21, 1)$ lies on line ℓ_4
 165 : $P_{92090} = (57, 29, 21, 1)$ lies on line ℓ_5
 166 : $P_{93817} = (56, 56, 21, 1)$ lies on line ℓ_2
 167 : $P_{93882} = (57, 57, 21, 1)$ lies on line ℓ_3
 168 : $P_{94273} = (0, 0, 22, 1)$ lies on line ℓ_1
 169 : $P_{96377} = (56, 32, 22, 1)$ lies on line ℓ_4
 170 : $P_{97850} = (57, 55, 22, 1)$ lies on line ℓ_5
 171 : $P_{97913} = (56, 56, 22, 1)$ lies on line ℓ_2
 172 : $P_{97978} = (57, 57, 22, 1)$ lies on line ℓ_3
 173 : $P_{98369} = (0, 0, 23, 1)$ lies on line ℓ_1
 174 : $P_{99322} = (57, 14, 23, 1)$ lies on line ℓ_5
 175 : $P_{99961} = (56, 24, 23, 1)$ lies on line ℓ_4
 176 : $P_{102009} = (56, 56, 23, 1)$ lies on line ℓ_2
 177 : $P_{102074} = (57, 57, 23, 1)$ lies on line ℓ_3
 178 : $P_{102465} = (0, 0, 24, 1)$ lies on line ℓ_1
 179 : $P_{105530} = (57, 47, 24, 1)$ lies on line ℓ_5
 180 : $P_{105977} = (56, 54, 24, 1)$ lies on line ℓ_4
 181 : $P_{106105} = (56, 56, 24, 1)$ lies on line ℓ_2
 182 : $P_{106170} = (57, 57, 24, 1)$ lies on line ℓ_3
 183 : $P_{106561} = (0, 0, 25, 1)$ lies on line ℓ_1
 184 : $P_{107513} = (56, 14, 25, 1)$ lies on line ℓ_4
 185 : $P_{108026} = (57, 22, 25, 1)$ lies on line ℓ_5
 186 : $P_{110201} = (56, 56, 25, 1)$ lies on line ℓ_2
 187 : $P_{110266} = (57, 57, 25, 1)$ lies on line ℓ_3
 188 : $P_{110657} = (0, 0, 26, 1)$ lies on line ℓ_1
 189 : $P_{113209} = (56, 39, 26, 1)$ lies on line ℓ_4
 190 : $P_{114297} = (56, 56, 26, 1)$ lies on line ℓ_2
 191 : $P_{114362} = (57, 57, 26, 1)$ lies on line ℓ_3
 192 : $P_{114554} = (57, 60, 26, 1)$ lies on line ℓ_5
 193 : $P_{114753} = (0, 0, 27, 1)$ lies on line ℓ_1
 194 : $P_{115130} = (57, 5, 27, 1)$ lies on line ℓ_5
 195 : $P_{116793} = (56, 31, 27, 1)$ lies on line ℓ_4

196 : $P_{118393} = (56, 56, 27, 1)$ lies on line ℓ_2
 197 : $P_{118458} = (57, 57, 27, 1)$ lies on line ℓ_3
 198 : $P_{118849} = (0, 0, 28, 1)$ lies on line ℓ_1
 199 : $P_{119482} = (57, 9, 28, 1)$ lies on line ℓ_5
 200 : $P_{120185} = (56, 20, 28, 1)$ lies on line ℓ_4
 201 : $P_{122489} = (56, 56, 28, 1)$ lies on line ℓ_2
 202 : $P_{122554} = (57, 57, 28, 1)$ lies on line ℓ_3
 203 : $P_{122945} = (0, 0, 29, 1)$ lies on line ℓ_1
 204 : $P_{125817} = (56, 44, 29, 1)$ lies on line ℓ_4
 205 : $P_{126074} = (57, 48, 29, 1)$ lies on line ℓ_5
 206 : $P_{126585} = (56, 56, 29, 1)$ lies on line ℓ_2
 207 : $P_{126650} = (57, 57, 29, 1)$ lies on line ℓ_3
 208 : $P_{127041} = (0, 0, 30, 1)$ lies on line ℓ_1
 209 : $P_{127417} = (56, 5, 30, 1)$ lies on line ℓ_4
 210 : $P_{128762} = (57, 26, 30, 1)$ lies on line ℓ_5
 211 : $P_{130681} = (56, 56, 30, 1)$ lies on line ℓ_2
 212 : $P_{130746} = (57, 57, 30, 1)$ lies on line ℓ_3
 213 : $P_{131137} = (0, 0, 31, 1)$ lies on line ℓ_1
 214 : $P_{133434} = (57, 35, 31, 1)$ lies on line ℓ_5
 215 : $P_{134777} = (56, 56, 31, 1)$ lies on line ℓ_2
 216 : $P_{134842} = (57, 57, 31, 1)$ lies on line ℓ_3
 217 : $P_{135097} = (56, 61, 31, 1)$ lies on line ℓ_4
 218 : $P_{135233} = (0, 0, 32, 1)$ lies on line ℓ_1
 219 : $P_{136249} = (56, 15, 32, 1)$ lies on line ℓ_4
 220 : $P_{138234} = (57, 46, 32, 1)$ lies on line ℓ_5
 221 : $P_{138873} = (56, 56, 32, 1)$ lies on line ℓ_2
 222 : $P_{138938} = (57, 57, 32, 1)$ lies on line ℓ_3
 223 : $P_{139329} = (0, 0, 33, 1)$ lies on line ℓ_1
 224 : $P_{140858} = (57, 23, 33, 1)$ lies on line ℓ_5
 225 : $P_{142905} = (56, 55, 33, 1)$ lies on line ℓ_4
 226 : $P_{142969} = (56, 56, 33, 1)$ lies on line ℓ_2
 227 : $P_{143034} = (57, 57, 33, 1)$ lies on line ℓ_3
 228 : $P_{143425} = (0, 0, 34, 1)$ lies on line ℓ_1
 229 : $P_{145401} = (56, 30, 34, 1)$ lies on line ℓ_4
 230 : $P_{147065} = (56, 56, 34, 1)$ lies on line ℓ_2
 231 : $P_{147130} = (57, 57, 34, 1)$ lies on line ℓ_3
 232 : $P_{147386} = (57, 61, 34, 1)$ lies on line ℓ_5
 233 : $P_{147521} = (0, 0, 35, 1)$ lies on line ℓ_1
 234 : $P_{147834} = (57, 4, 35, 1)$ lies on line ℓ_5
 235 : $P_{150009} = (56, 38, 35, 1)$ lies on line ℓ_4
 236 : $P_{151161} = (56, 56, 35, 1)$ lies on line ℓ_2
 237 : $P_{151226} = (57, 57, 35, 1)$ lies on line ℓ_3
 238 : $P_{151617} = (0, 0, 36, 1)$ lies on line ℓ_1
 239 : $P_{152186} = (57, 8, 36, 1)$ lies on line ℓ_5
 240 : $P_{154553} = (56, 45, 36, 1)$ lies on line ℓ_4
 241 : $P_{155257} = (56, 56, 36, 1)$ lies on line ℓ_2
 242 : $P_{155322} = (57, 57, 36, 1)$ lies on line ℓ_3
 243 : $P_{155713} = (0, 0, 37, 1)$ lies on line ℓ_1
 244 : $P_{157113} = (56, 21, 37, 1)$ lies on line ℓ_4
 245 : $P_{158906} = (57, 49, 37, 1)$ lies on line ℓ_5
 246 : $P_{159353} = (56, 56, 37, 1)$ lies on line ℓ_2
 247 : $P_{159418} = (57, 57, 37, 1)$ lies on line ℓ_3
 248 : $P_{159809} = (0, 0, 38, 1)$ lies on line ℓ_1
 249 : $P_{161594} = (57, 27, 38, 1)$ lies on line ℓ_5

250 : $P_{163449} = (56, 56, 38, 1)$ lies on line ℓ_2
 251 : $P_{163514} = (57, 57, 38, 1)$ lies on line ℓ_3
 252 : $P_{163705} = (56, 60, 38, 1)$ lies on line ℓ_4
 253 : $P_{163905} = (0, 0, 39, 1)$ lies on line ℓ_1
 254 : $P_{164217} = (56, 4, 39, 1)$ lies on line ℓ_4
 255 : $P_{166138} = (57, 34, 39, 1)$ lies on line ℓ_5
 256 : $P_{167545} = (56, 56, 39, 1)$ lies on line ℓ_2
 257 : $P_{167610} = (57, 57, 39, 1)$ lies on line ℓ_3
 258 : $P_{168001} = (0, 0, 40, 1)$ lies on line ℓ_1
 259 : $P_{168250} = (57, 3, 40, 1)$ lies on line ℓ_5
 260 : $P_{170745} = (56, 42, 40, 1)$ lies on line ℓ_4
 261 : $P_{171641} = (56, 56, 40, 1)$ lies on line ℓ_2
 262 : $P_{171706} = (57, 57, 40, 1)$ lies on line ℓ_3
 263 : $P_{172097} = (0, 0, 41, 1)$ lies on line ℓ_1
 264 : $P_{173305} = (56, 18, 41, 1)$ lies on line ℓ_4
 265 : $P_{175737} = (56, 56, 41, 1)$ lies on line ℓ_2
 266 : $P_{175802} = (57, 57, 41, 1)$ lies on line ℓ_3
 267 : $P_{175866} = (57, 58, 41, 1)$ lies on line ℓ_5
 268 : $P_{176193} = (0, 0, 42, 1)$ lies on line ℓ_1
 269 : $P_{177274} = (57, 16, 42, 1)$ lies on line ℓ_5
 270 : $P_{179833} = (56, 56, 42, 1)$ lies on line ℓ_2
 271 : $P_{179898} = (57, 57, 42, 1)$ lies on line ℓ_3
 272 : $P_{180025} = (56, 59, 42, 1)$ lies on line ℓ_4
 273 : $P_{180289} = (0, 0, 43, 1)$ lies on line ℓ_1
 274 : $P_{180537} = (56, 3, 43, 1)$ lies on line ℓ_4
 275 : $P_{182970} = (57, 41, 43, 1)$ lies on line ℓ_5
 276 : $P_{183929} = (56, 56, 43, 1)$ lies on line ℓ_2
 277 : $P_{183994} = (57, 57, 43, 1)$ lies on line ℓ_3
 278 : $P_{184385} = (0, 0, 44, 1)$ lies on line ℓ_1
 279 : $P_{184953} = (56, 8, 44, 1)$ lies on line ℓ_4
 280 : $P_{186810} = (57, 37, 44, 1)$ lies on line ℓ_5
 281 : $P_{188025} = (56, 56, 44, 1)$ lies on line ℓ_2
 282 : $P_{188090} = (57, 57, 44, 1)$ lies on line ℓ_3
 283 : $P_{188481} = (0, 0, 45, 1)$ lies on line ℓ_1
 284 : $P_{190330} = (57, 28, 45, 1)$ lies on line ℓ_5
 285 : $P_{191609} = (56, 48, 45, 1)$ lies on line ℓ_4
 286 : $P_{192121} = (56, 56, 45, 1)$ lies on line ℓ_2
 287 : $P_{192186} = (57, 57, 45, 1)$ lies on line ℓ_3
 288 : $P_{192577} = (0, 0, 46, 1)$ lies on line ℓ_1
 289 : $P_{194233} = (56, 25, 46, 1)$ lies on line ℓ_4
 290 : $P_{196090} = (57, 54, 46, 1)$ lies on line ℓ_5
 291 : $P_{196217} = (56, 56, 46, 1)$ lies on line ℓ_2
 292 : $P_{196282} = (57, 57, 46, 1)$ lies on line ℓ_3
 293 : $P_{196673} = (0, 0, 47, 1)$ lies on line ℓ_1
 294 : $P_{197690} = (57, 15, 47, 1)$ lies on line ℓ_5
 295 : $P_{198841} = (56, 33, 47, 1)$ lies on line ℓ_4
 296 : $P_{200313} = (56, 56, 47, 1)$ lies on line ℓ_2
 297 : $P_{200378} = (57, 57, 47, 1)$ lies on line ℓ_3
 298 : $P_{200769} = (0, 0, 48, 1)$ lies on line ℓ_1
 299 : $P_{202170} = (57, 21, 48, 1)$ lies on line ℓ_5
 300 : $P_{203129} = (56, 36, 48, 1)$ lies on line ℓ_4
 301 : $P_{204409} = (56, 56, 48, 1)$ lies on line ℓ_2
 302 : $P_{204474} = (57, 57, 48, 1)$ lies on line ℓ_3
 303 : $P_{204865} = (0, 0, 49, 1)$ lies on line ℓ_1
 304 : $P_{206713} = (56, 28, 49, 1)$ lies on line ℓ_4
 305 : $P_{207738} = (57, 44, 49, 1)$ lies on line ℓ_5
 306 : $P_{208505} = (56, 56, 49, 1)$ lies on line ℓ_2
 307 : $P_{208570} = (57, 57, 49, 1)$ lies on line ℓ_3
 308 : $P_{208961} = (0, 0, 50, 1)$ lies on line ℓ_1
 309 : $P_{209402} = (57, 6, 50, 1)$ lies on line ℓ_5
 310 : $P_{212409} = (56, 53, 50, 1)$ lies on line ℓ_4
 311 : $P_{212601} = (56, 56, 50, 1)$ lies on line ℓ_2
 312 : $P_{212666} = (57, 57, 50, 1)$ lies on line ℓ_3
 313 : $P_{213057} = (0, 0, 51, 1)$ lies on line ℓ_1
 314 : $P_{213945} = (56, 13, 51, 1)$ lies on line ℓ_4
 315 : $P_{216697} = (56, 56, 51, 1)$ lies on line ℓ_2
 316 : $P_{216762} = (57, 57, 51, 1)$ lies on line ℓ_3
 317 : $P_{217146} = (57, 63, 51, 1)$ lies on line ℓ_5
 318 : $P_{217153} = (0, 0, 52, 1)$ lies on line ℓ_1
 319 : $P_{217593} = (56, 6, 52, 1)$ lies on line ℓ_4
 320 : $P_{220474} = (57, 51, 52, 1)$ lies on line ℓ_5
 321 : $P_{220793} = (56, 56, 52, 1)$ lies on line ℓ_2
 322 : $P_{220858} = (57, 57, 52, 1)$ lies on line ℓ_3
 323 : $P_{221249} = (0, 0, 53, 1)$ lies on line ℓ_1
 324 : $P_{221946} = (57, 10, 53, 1)$ lies on line ℓ_5
 325 : $P_{224889} = (56, 56, 53, 1)$ lies on line ℓ_2
 326 : $P_{224954} = (57, 57, 53, 1)$ lies on line ℓ_3
 327 : $P_{225273} = (56, 62, 53, 1)$ lies on line ℓ_4
 328 : $P_{225345} = (0, 0, 54, 1)$ lies on line ℓ_1
 329 : $P_{226873} = (56, 23, 54, 1)$ lies on line ℓ_4
 330 : $P_{227450} = (57, 32, 54, 1)$ lies on line ℓ_5
 331 : $P_{228985} = (56, 56, 54, 1)$ lies on line ℓ_2
 332 : $P_{229050} = (57, 57, 54, 1)$ lies on line ℓ_3
 333 : $P_{229441} = (0, 0, 55, 1)$ lies on line ℓ_1
 334 : $P_{231098} = (57, 25, 55, 1)$ lies on line ℓ_5
 335 : $P_{232505} = (56, 47, 55, 1)$ lies on line ℓ_4
 336 : $P_{233081} = (56, 56, 55, 1)$ lies on line ℓ_2
 337 : $P_{233146} = (57, 57, 55, 1)$ lies on line ℓ_3
 338 : $P_{233537} = (0, 0, 56, 1)$ lies on line ℓ_1
 339 : $P_{233657} = (56, 1, 56, 1)$ lies on line ℓ_4
 340 : $P_{237177} = (56, 56, 56, 1)$ lies on line ℓ_2
 341 : $P_{237178} = (57, 56, 56, 1)$ lies on line ℓ_5
 342 : $P_{237242} = (57, 57, 56, 1)$ lies on line ℓ_3
 343 : $P_{237633} = (0, 0, 57, 1)$ lies on line ℓ_1
 344 : $P_{237754} = (57, 1, 57, 1)$ lies on line ℓ_5
 345 : $P_{241273} = (56, 56, 57, 1)$ lies on line ℓ_2
 346 : $P_{241337} = (56, 57, 57, 1)$ lies on line ℓ_4
 347 : $P_{241338} = (57, 57, 57, 1)$ lies on line ℓ_3
 348 : $P_{241729} = (0, 0, 58, 1)$ lies on line ℓ_1
 349 : $P_{242809} = (56, 16, 58, 1)$ lies on line ℓ_4
 350 : $P_{244538} = (57, 43, 58, 1)$ lies on line ℓ_5
 351 : $P_{245369} = (56, 56, 58, 1)$ lies on line ℓ_2
 352 : $P_{245434} = (57, 57, 58, 1)$ lies on line ℓ_3
 353 : $P_{245825} = (0, 0, 59, 1)$ lies on line ℓ_1
 354 : $P_{247034} = (57, 18, 59, 1)$ lies on line ℓ_5
 355 : $P_{248441} = (56, 40, 59, 1)$ lies on line ℓ_4
 356 : $P_{249465} = (56, 56, 59, 1)$ lies on line ℓ_2
 357 : $P_{249530} = (57, 57, 59, 1)$ lies on line ℓ_3

358 : $P_{249921} = (0, 0, 60, 1)$ lies on line ℓ_1
 359 : $P_{251898} = (57, 30, 60, 1)$ lies on line ℓ_5
 360 : $P_{252217} = (56, 35, 60, 1)$ lies on line ℓ_4
 361 : $P_{253561} = (56, 56, 60, 1)$ lies on line ℓ_2
 362 : $P_{253626} = (57, 57, 60, 1)$ lies on line ℓ_3
 363 : $P_{254017} = (0, 0, 61, 1)$ lies on line ℓ_1
 364 : $P_{255801} = (56, 27, 61, 1)$ lies on line ℓ_4
 365 : $P_{256570} = (57, 39, 61, 1)$ lies on line ℓ_5
 366 : $P_{257657} = (56, 56, 61, 1)$ lies on line ℓ_2
 367 : $P_{257722} = (57, 57, 61, 1)$ lies on line ℓ_3
 368 : $P_{258113} = (0, 0, 62, 1)$ lies on line ℓ_1

369 : $P_{259002} = (57, 13, 62, 1)$ lies on line ℓ_5
 370 : $P_{261369} = (56, 50, 62, 1)$ lies on line ℓ_4
 371 : $P_{261753} = (56, 56, 62, 1)$ lies on line ℓ_2
 372 : $P_{261818} = (57, 57, 62, 1)$ lies on line ℓ_3
 373 : $P_{262209} = (0, 0, 63, 1)$ lies on line ℓ_1
 374 : $P_{262905} = (56, 10, 63, 1)$ lies on line ℓ_4
 375 : $P_{265594} = (57, 52, 63, 1)$ lies on line ℓ_5
 376 : $P_{265849} = (56, 56, 63, 1)$ lies on line ℓ_2
 377 : $P_{265914} = (57, 57, 63, 1)$ lies on line ℓ_3

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

Neighbor sets in the line intersection graph:

Line 0 intersects

Line	ℓ_1	ℓ_2	ℓ_3	ℓ_4	ℓ_5
in point	P_2	P_2	P_2	P_{3651}	P_{3715}

Line 1 intersects

Line	ℓ_0	ℓ_2	ℓ_3
in point	P_2	P_2	P_2

Line 2 intersects

Line	ℓ_0	ℓ_1	ℓ_3	ℓ_4
in point	P_2	P_2	P_2	P_{7802}

Line 3 intersects

Line	ℓ_0	ℓ_1	ℓ_2	ℓ_5
in point	P_2	P_2	P_2	P_{7867}

Line 4 intersects

Line	ℓ_0	ℓ_2
in point	P_{3651}	P_{7802}

Line 5 intersects

Line	ℓ_0	ℓ_3
in point	P_{3715}	P_{7867}

The surface has 4289 points:
Too many to print.