

Rank-76292 over GF(64)

January 15, 2021

The equation

The equation of the surface is :

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

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

The point rank of the equation over GF(64) is 1090785350

General information

Number of lines	4
Number of points	4161
Number of singular points	2
Number of Eckardt points	1
Number of double points	1
Number of single points	255
Number of points off lines	3904
Number of Hesse planes	0
Number of axes	0
Type of points on lines	65^4
Type of lines on points	$3, 2, 1^{255}, 0^{3904}$

Singular Points

The surface has 2 singular points:

$$0 : P_{4163} = \mathbf{P}(1, 0, 0, 1) = \mathbf{P}(1, 0, 0, 1)$$

$$1 : P_{8259} = \mathbf{P}(1, 0, 1, 1) = \mathbf{P}(1, 0, 1, 1)$$

The 4 Lines

The lines and their Pluecker coordinates are:

$$\ell_0 = \begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{17047616} = \begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{17047616} = \mathbf{Pl}(0, 1, 0, 0, 0, 0)_1$$

$$\begin{aligned}\ell_1 &= \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{270400} = \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{270400} = \mathbf{PI}(0, 1, 1, 0, 0, 0)_{66} \\ \ell_2 &= \begin{bmatrix} 1 & 1 & 0 & \epsilon^{21} \\ 0 & 0 & 1 & 1 \end{bmatrix}_{15187586} = \begin{bmatrix} 1 & 1 & 0 & 57 \\ 0 & 0 & 1 & 1 \end{bmatrix}_{15187586} = \mathbf{PI}(0, 57, 1, 1, 1, 1)_{544698} \\ \ell_3 &= \begin{bmatrix} 1 & 1 & 0 & \epsilon^{42} \\ 0 & 0 & 1 & 1 \end{bmatrix}_{14921282} = \begin{bmatrix} 1 & 1 & 0 & 56 \\ 0 & 0 & 1 & 1 \end{bmatrix}_{14921282} = \mathbf{PI}(0, 56, 1, 1, 1, 1)_{544697}\end{aligned}$$

Rank of lines: (17047616, 270400, 15187586, 14921282)

Rank of points on Klein quadric: (1, 66, 544698, 544697)

Eckardt Points

The surface has 1 Eckardt points:

$$0 : P_{8258} = \mathbf{P}(0, 0, 1, 1) = \mathbf{P}(0, 0, 1, 1).$$

Double Points

The surface has 1 Double points:

The double points on the surface are:

$$P_2 = (0, 0, 1, 0) = \ell_0 \cap \ell_1$$

Single Points

The surface has 255 single points:

The single points on the surface are:

- | | |
|---|--|
| 0 : $P_3 = (0, 0, 0, 1)$ lies on line ℓ_0 | 23 : $P_{28737} = (0, 0, 6, 1)$ lies on line ℓ_0 |
| 1 : $P_{3707} = (56, 56, 1, 0)$ lies on line ℓ_2 | 24 : $P_{28738} = (1, 0, 6, 1)$ lies on line ℓ_1 |
| 2 : $P_{3772} = (57, 57, 1, 0)$ lies on line ℓ_3 | 25 : $P_{29452} = (11, 11, 6, 1)$ lies on line ℓ_2 |
| 3 : $P_{4163} = (1, 0, 0, 1)$ lies on line ℓ_1 | 26 : $P_{29517} = (12, 12, 6, 1)$ lies on line ℓ_3 |
| 4 : $P_{7802} = (56, 56, 0, 1)$ lies on line ℓ_2 | 27 : $P_{32833} = (0, 0, 7, 1)$ lies on line ℓ_0 |
| 5 : $P_{7867} = (57, 57, 0, 1)$ lies on line ℓ_3 | 28 : $P_{32834} = (1, 0, 7, 1)$ lies on line ℓ_1 |
| 6 : $P_{8259} = (1, 0, 1, 1)$ lies on line ℓ_1 | 29 : $P_{36148} = (51, 51, 7, 1)$ lies on line ℓ_2 |
| 7 : $P_{12353} = (0, 0, 2, 1)$ lies on line ℓ_0 | 30 : $P_{36278} = (53, 53, 7, 1)$ lies on line ℓ_3 |
| 8 : $P_{12354} = (1, 0, 2, 1)$ lies on line ℓ_1 | 31 : $P_{36929} = (0, 0, 8, 1)$ lies on line ℓ_0 |
| 9 : $P_{15018} = (41, 41, 2, 1)$ lies on line ℓ_2 | 32 : $P_{36930} = (1, 0, 8, 1)$ lies on line ℓ_1 |
| 10 : $P_{15083} = (42, 42, 2, 1)$ lies on line ℓ_3 | 33 : $P_{38229} = (20, 20, 8, 1)$ lies on line ℓ_2 |
| 11 : $P_{16449} = (0, 0, 3, 1)$ lies on line ℓ_0 | 34 : $P_{38814} = (29, 29, 8, 1)$ lies on line ℓ_3 |
| 12 : $P_{16450} = (1, 0, 3, 1)$ lies on line ℓ_1 | 35 : $P_{41025} = (0, 0, 9, 1)$ lies on line ℓ_0 |
| 13 : $P_{17554} = (17, 17, 3, 1)$ lies on line ℓ_2 | 36 : $P_{41026} = (1, 0, 9, 1)$ lies on line ℓ_1 |
| 14 : $P_{17684} = (19, 19, 3, 1)$ lies on line ℓ_3 | 37 : $P_{43430} = (37, 37, 9, 1)$ lies on line ℓ_2 |
| 15 : $P_{20545} = (0, 0, 4, 1)$ lies on line ℓ_0 | 38 : $P_{43950} = (45, 45, 9, 1)$ lies on line ℓ_3 |
| 16 : $P_{20546} = (1, 0, 4, 1)$ lies on line ℓ_1 | 39 : $P_{45121} = (0, 0, 10, 1)$ lies on line ℓ_0 |
| 17 : $P_{22235} = (26, 26, 4, 1)$ lies on line ℓ_2 | 40 : $P_{45122} = (1, 0, 10, 1)$ lies on line ℓ_1 |
| 18 : $P_{22560} = (31, 31, 4, 1)$ lies on line ℓ_3 | 41 : $P_{45576} = (7, 7, 10, 1)$ lies on line ℓ_2 |
| 19 : $P_{24641} = (0, 0, 5, 1)$ lies on line ℓ_0 | 42 : $P_{45901} = (12, 12, 10, 1)$ lies on line ℓ_3 |
| 20 : $P_{24642} = (1, 0, 5, 1)$ lies on line ℓ_1 | 43 : $P_{49217} = (0, 0, 11, 1)$ lies on line ℓ_0 |
| 21 : $P_{26851} = (34, 34, 5, 1)$ lies on line ℓ_2 | 44 : $P_{49218} = (1, 0, 11, 1)$ lies on line ℓ_1 |
| 22 : $P_{27111} = (38, 38, 5, 1)$ lies on line ℓ_3 | 45 : $P_{52597} = (52, 52, 11, 1)$ lies on line ℓ_2 |

46 : $P_{53247} = (62, 62, 11, 1)$ lies on line ℓ_3
 47 : $P_{53313} = (0, 0, 12, 1)$ lies on line ℓ_0
 48 : $P_{53314} = (1, 0, 12, 1)$ lies on line ℓ_1
 49 : $P_{56563} = (50, 50, 12, 1)$ lies on line ℓ_3
 50 : $P_{57408} = (63, 63, 12, 1)$ lies on line ℓ_2
 51 : $P_{57409} = (0, 0, 13, 1)$ lies on line ℓ_0
 52 : $P_{57410} = (1, 0, 13, 1)$ lies on line ℓ_1
 53 : $P_{57864} = (7, 7, 13, 1)$ lies on line ℓ_2
 54 : $P_{58124} = (11, 11, 13, 1)$ lies on line ℓ_3
 55 : $P_{61505} = (0, 0, 14, 1)$ lies on line ℓ_0
 56 : $P_{61506} = (1, 0, 14, 1)$ lies on line ℓ_1
 57 : $P_{63650} = (33, 33, 14, 1)$ lies on line ℓ_3
 58 : $P_{64495} = (46, 46, 14, 1)$ lies on line ℓ_2
 59 : $P_{65601} = (0, 0, 15, 1)$ lies on line ℓ_0
 60 : $P_{65602} = (1, 0, 15, 1)$ lies on line ℓ_1
 61 : $P_{67031} = (22, 22, 15, 1)$ lies on line ℓ_2
 62 : $P_{67161} = (24, 24, 15, 1)$ lies on line ℓ_3
 63 : $P_{69697} = (0, 0, 16, 1)$ lies on line ℓ_0
 64 : $P_{69698} = (1, 0, 16, 1)$ lies on line ℓ_1
 65 : $P_{69827} = (2, 2, 16, 1)$ lies on line ℓ_3
 66 : $P_{70932} = (19, 19, 16, 1)$ lies on line ℓ_2
 67 : $P_{73793} = (0, 0, 17, 1)$ lies on line ℓ_0
 68 : $P_{73794} = (1, 0, 17, 1)$ lies on line ℓ_1
 69 : $P_{76588} = (43, 43, 17, 1)$ lies on line ℓ_2
 70 : $P_{77628} = (59, 59, 17, 1)$ lies on line ℓ_3
 71 : $P_{77889} = (0, 0, 18, 1)$ lies on line ℓ_0
 72 : $P_{77890} = (1, 0, 18, 1)$ lies on line ℓ_1
 73 : $P_{78019} = (2, 2, 18, 1)$ lies on line ℓ_2
 74 : $P_{78994} = (17, 17, 18, 1)$ lies on line ℓ_3
 75 : $P_{81985} = (0, 0, 19, 1)$ lies on line ℓ_0
 76 : $P_{81986} = (1, 0, 19, 1)$ lies on line ℓ_1
 77 : $P_{84585} = (40, 40, 19, 1)$ lies on line ℓ_3
 78 : $P_{85755} = (58, 58, 19, 1)$ lies on line ℓ_2
 79 : $P_{86081} = (0, 0, 20, 1)$ lies on line ℓ_0
 80 : $P_{86082} = (1, 0, 20, 1)$ lies on line ℓ_1
 81 : $P_{88421} = (36, 36, 20, 1)$ lies on line ℓ_3
 82 : $P_{89266} = (49, 49, 20, 1)$ lies on line ℓ_2
 83 : $P_{90177} = (0, 0, 21, 1)$ lies on line ℓ_0
 84 : $P_{90178} = (1, 0, 21, 1)$ lies on line ℓ_1
 85 : $P_{90762} = (9, 9, 21, 1)$ lies on line ℓ_2
 86 : $P_{92062} = (29, 29, 21, 1)$ lies on line ℓ_3
 87 : $P_{94273} = (0, 0, 22, 1)$ lies on line ℓ_0
 88 : $P_{94274} = (1, 0, 22, 1)$ lies on line ℓ_1
 89 : $P_{96353} = (32, 32, 22, 1)$ lies on line ℓ_2
 90 : $P_{97848} = (55, 55, 22, 1)$ lies on line ℓ_3
 91 : $P_{98369} = (0, 0, 23, 1)$ lies on line ℓ_0
 92 : $P_{98370} = (1, 0, 23, 1)$ lies on line ℓ_1
 93 : $P_{99279} = (14, 14, 23, 1)$ lies on line ℓ_3
 94 : $P_{99929} = (24, 24, 23, 1)$ lies on line ℓ_2
 95 : $P_{102465} = (0, 0, 24, 1)$ lies on line ℓ_0
 96 : $P_{102466} = (1, 0, 24, 1)$ lies on line ℓ_1
 97 : $P_{105520} = (47, 47, 24, 1)$ lies on line ℓ_3
 98 : $P_{105975} = (54, 54, 24, 1)$ lies on line ℓ_2
 99 : $P_{106561} = (0, 0, 25, 1)$ lies on line ℓ_0

100 : $P_{106562} = (1, 0, 25, 1)$ lies on line ℓ_1
 101 : $P_{107471} = (14, 14, 25, 1)$ lies on line ℓ_2
 102 : $P_{107991} = (22, 22, 25, 1)$ lies on line ℓ_3
 103 : $P_{110657} = (0, 0, 26, 1)$ lies on line ℓ_0
 104 : $P_{110658} = (1, 0, 26, 1)$ lies on line ℓ_1
 105 : $P_{113192} = (39, 39, 26, 1)$ lies on line ℓ_2
 106 : $P_{114557} = (60, 60, 26, 1)$ lies on line ℓ_3
 107 : $P_{114753} = (0, 0, 27, 1)$ lies on line ℓ_0
 108 : $P_{114754} = (1, 0, 27, 1)$ lies on line ℓ_1
 109 : $P_{115078} = (5, 5, 27, 1)$ lies on line ℓ_3
 110 : $P_{116768} = (31, 31, 27, 1)$ lies on line ℓ_2
 111 : $P_{118849} = (0, 0, 28, 1)$ lies on line ℓ_0
 112 : $P_{118850} = (1, 0, 28, 1)$ lies on line ℓ_1
 113 : $P_{119434} = (9, 9, 28, 1)$ lies on line ℓ_3
 114 : $P_{120149} = (20, 20, 28, 1)$ lies on line ℓ_2
 115 : $P_{122945} = (0, 0, 29, 1)$ lies on line ℓ_0
 116 : $P_{122946} = (1, 0, 29, 1)$ lies on line ℓ_1
 117 : $P_{125805} = (44, 44, 29, 1)$ lies on line ℓ_2
 118 : $P_{126065} = (48, 48, 29, 1)$ lies on line ℓ_3
 119 : $P_{127041} = (0, 0, 30, 1)$ lies on line ℓ_0
 120 : $P_{127042} = (1, 0, 30, 1)$ lies on line ℓ_1
 121 : $P_{127366} = (5, 5, 30, 1)$ lies on line ℓ_2
 122 : $P_{128731} = (26, 26, 30, 1)$ lies on line ℓ_3
 123 : $P_{131137} = (0, 0, 31, 1)$ lies on line ℓ_0
 124 : $P_{131138} = (1, 0, 31, 1)$ lies on line ℓ_1
 125 : $P_{133412} = (35, 35, 31, 1)$ lies on line ℓ_3
 126 : $P_{135102} = (61, 61, 31, 1)$ lies on line ℓ_2
 127 : $P_{135233} = (0, 0, 32, 1)$ lies on line ℓ_0
 128 : $P_{135234} = (1, 0, 32, 1)$ lies on line ℓ_1
 129 : $P_{136208} = (15, 15, 32, 1)$ lies on line ℓ_2
 130 : $P_{138223} = (46, 46, 32, 1)$ lies on line ℓ_3
 131 : $P_{139329} = (0, 0, 33, 1)$ lies on line ℓ_0
 132 : $P_{139330} = (1, 0, 33, 1)$ lies on line ℓ_1
 133 : $P_{140824} = (23, 23, 33, 1)$ lies on line ℓ_3
 134 : $P_{142904} = (55, 55, 33, 1)$ lies on line ℓ_2
 135 : $P_{143425} = (0, 0, 34, 1)$ lies on line ℓ_0
 136 : $P_{143426} = (1, 0, 34, 1)$ lies on line ℓ_1
 137 : $P_{145375} = (30, 30, 34, 1)$ lies on line ℓ_2
 138 : $P_{147390} = (61, 61, 34, 1)$ lies on line ℓ_3
 139 : $P_{147521} = (0, 0, 35, 1)$ lies on line ℓ_0
 140 : $P_{147522} = (1, 0, 35, 1)$ lies on line ℓ_1
 141 : $P_{147781} = (4, 4, 35, 1)$ lies on line ℓ_3
 142 : $P_{149991} = (38, 38, 35, 1)$ lies on line ℓ_2
 143 : $P_{151617} = (0, 0, 36, 1)$ lies on line ℓ_0
 144 : $P_{151618} = (1, 0, 36, 1)$ lies on line ℓ_1
 145 : $P_{152137} = (8, 8, 36, 1)$ lies on line ℓ_3
 146 : $P_{154542} = (45, 45, 36, 1)$ lies on line ℓ_2
 147 : $P_{155713} = (0, 0, 37, 1)$ lies on line ℓ_0
 148 : $P_{155714} = (1, 0, 37, 1)$ lies on line ℓ_1
 149 : $P_{157078} = (21, 21, 37, 1)$ lies on line ℓ_2
 150 : $P_{158898} = (49, 49, 37, 1)$ lies on line ℓ_3
 151 : $P_{159809} = (0, 0, 38, 1)$ lies on line ℓ_0
 152 : $P_{159810} = (1, 0, 38, 1)$ lies on line ℓ_1
 153 : $P_{161564} = (27, 27, 38, 1)$ lies on line ℓ_3

154 : $P_{163709} = (60, 60, 38, 1)$ lies on line ℓ_2	205 : $P_{213902} = (13, 13, 51, 1)$ lies on line ℓ_2
155 : $P_{163905} = (0, 0, 39, 1)$ lies on line ℓ_0	206 : $P_{217152} = (63, 63, 51, 1)$ lies on line ℓ_3
156 : $P_{163906} = (1, 0, 39, 1)$ lies on line ℓ_1	207 : $P_{217153} = (0, 0, 52, 1)$ lies on line ℓ_0
157 : $P_{164165} = (4, 4, 39, 1)$ lies on line ℓ_2	208 : $P_{217154} = (1, 0, 52, 1)$ lies on line ℓ_1
158 : $P_{166115} = (34, 34, 39, 1)$ lies on line ℓ_3	209 : $P_{217543} = (6, 6, 52, 1)$ lies on line ℓ_2
159 : $P_{168001} = (0, 0, 40, 1)$ lies on line ℓ_0	210 : $P_{220468} = (51, 51, 52, 1)$ lies on line ℓ_3
160 : $P_{168002} = (1, 0, 40, 1)$ lies on line ℓ_1	211 : $P_{221249} = (0, 0, 53, 1)$ lies on line ℓ_0
161 : $P_{168196} = (3, 3, 40, 1)$ lies on line ℓ_3	212 : $P_{221250} = (1, 0, 53, 1)$ lies on line ℓ_1
162 : $P_{170731} = (42, 42, 40, 1)$ lies on line ℓ_2	213 : $P_{221899} = (10, 10, 53, 1)$ lies on line ℓ_3
163 : $P_{172097} = (0, 0, 41, 1)$ lies on line ℓ_0	214 : $P_{225279} = (62, 62, 53, 1)$ lies on line ℓ_2
164 : $P_{172098} = (1, 0, 41, 1)$ lies on line ℓ_1	215 : $P_{225345} = (0, 0, 54, 1)$ lies on line ℓ_0
165 : $P_{173267} = (18, 18, 41, 1)$ lies on line ℓ_2	216 : $P_{225346} = (1, 0, 54, 1)$ lies on line ℓ_1
166 : $P_{175867} = (58, 58, 41, 1)$ lies on line ℓ_3	217 : $P_{226840} = (23, 23, 54, 1)$ lies on line ℓ_2
167 : $P_{176193} = (0, 0, 42, 1)$ lies on line ℓ_0	218 : $P_{227425} = (32, 32, 54, 1)$ lies on line ℓ_3
168 : $P_{176194} = (1, 0, 42, 1)$ lies on line ℓ_1	219 : $P_{229441} = (0, 0, 55, 1)$ lies on line ℓ_0
169 : $P_{177233} = (16, 16, 42, 1)$ lies on line ℓ_3	220 : $P_{229442} = (1, 0, 55, 1)$ lies on line ℓ_1
170 : $P_{180028} = (59, 59, 42, 1)$ lies on line ℓ_2	221 : $P_{231066} = (25, 25, 55, 1)$ lies on line ℓ_3
171 : $P_{180289} = (0, 0, 43, 1)$ lies on line ℓ_0	222 : $P_{232496} = (47, 47, 55, 1)$ lies on line ℓ_2
172 : $P_{180290} = (1, 0, 43, 1)$ lies on line ℓ_1	223 : $P_{233537} = (0, 0, 56, 1)$ lies on line ℓ_0
173 : $P_{180484} = (3, 3, 43, 1)$ lies on line ℓ_2	224 : $P_{233538} = (1, 0, 56, 1)$ lies on line ℓ_1
174 : $P_{182954} = (41, 41, 43, 1)$ lies on line ℓ_3	225 : $P_{233602} = (1, 1, 56, 1)$ lies on line ℓ_2
175 : $P_{184385} = (0, 0, 44, 1)$ lies on line ℓ_0	226 : $P_{237177} = (56, 56, 56, 1)$ lies on line ℓ_3
176 : $P_{184386} = (1, 0, 44, 1)$ lies on line ℓ_1	227 : $P_{237633} = (0, 0, 57, 1)$ lies on line ℓ_0
177 : $P_{184905} = (8, 8, 44, 1)$ lies on line ℓ_2	228 : $P_{237634} = (1, 0, 57, 1)$ lies on line ℓ_1
178 : $P_{186790} = (37, 37, 44, 1)$ lies on line ℓ_3	229 : $P_{237698} = (1, 1, 57, 1)$ lies on line ℓ_3
179 : $P_{188481} = (0, 0, 45, 1)$ lies on line ℓ_0	230 : $P_{241338} = (57, 57, 57, 1)$ lies on line ℓ_2
180 : $P_{188482} = (1, 0, 45, 1)$ lies on line ℓ_1	231 : $P_{241729} = (0, 0, 58, 1)$ lies on line ℓ_0
181 : $P_{190301} = (28, 28, 45, 1)$ lies on line ℓ_3	232 : $P_{241730} = (1, 0, 58, 1)$ lies on line ℓ_1
182 : $P_{191601} = (48, 48, 45, 1)$ lies on line ℓ_2	233 : $P_{242769} = (16, 16, 58, 1)$ lies on line ℓ_2
183 : $P_{192577} = (0, 0, 46, 1)$ lies on line ℓ_0	234 : $P_{244524} = (43, 43, 58, 1)$ lies on line ℓ_3
184 : $P_{192578} = (1, 0, 46, 1)$ lies on line ℓ_1	235 : $P_{245825} = (0, 0, 59, 1)$ lies on line ℓ_0
185 : $P_{194202} = (25, 25, 46, 1)$ lies on line ℓ_2	236 : $P_{245826} = (1, 0, 59, 1)$ lies on line ℓ_1
186 : $P_{196087} = (54, 54, 46, 1)$ lies on line ℓ_3	237 : $P_{246995} = (18, 18, 59, 1)$ lies on line ℓ_3
187 : $P_{196673} = (0, 0, 47, 1)$ lies on line ℓ_0	238 : $P_{248425} = (40, 40, 59, 1)$ lies on line ℓ_2
188 : $P_{196674} = (1, 0, 47, 1)$ lies on line ℓ_1	239 : $P_{249921} = (0, 0, 60, 1)$ lies on line ℓ_0
189 : $P_{197648} = (15, 15, 47, 1)$ lies on line ℓ_3	240 : $P_{249922} = (1, 0, 60, 1)$ lies on line ℓ_1
190 : $P_{198818} = (33, 33, 47, 1)$ lies on line ℓ_2	241 : $P_{251871} = (30, 30, 60, 1)$ lies on line ℓ_3
191 : $P_{200769} = (0, 0, 48, 1)$ lies on line ℓ_0	242 : $P_{252196} = (35, 35, 60, 1)$ lies on line ℓ_2
192 : $P_{200770} = (1, 0, 48, 1)$ lies on line ℓ_1	243 : $P_{254017} = (0, 0, 61, 1)$ lies on line ℓ_0
193 : $P_{202134} = (21, 21, 48, 1)$ lies on line ℓ_3	244 : $P_{254018} = (1, 0, 61, 1)$ lies on line ℓ_1
194 : $P_{203109} = (36, 36, 48, 1)$ lies on line ℓ_2	245 : $P_{255772} = (27, 27, 61, 1)$ lies on line ℓ_2
195 : $P_{204865} = (0, 0, 49, 1)$ lies on line ℓ_0	246 : $P_{256552} = (39, 39, 61, 1)$ lies on line ℓ_3
196 : $P_{204866} = (1, 0, 49, 1)$ lies on line ℓ_1	247 : $P_{258113} = (0, 0, 62, 1)$ lies on line ℓ_0
197 : $P_{206685} = (28, 28, 49, 1)$ lies on line ℓ_2	248 : $P_{258114} = (1, 0, 62, 1)$ lies on line ℓ_1
198 : $P_{207725} = (44, 44, 49, 1)$ lies on line ℓ_3	249 : $P_{258958} = (13, 13, 62, 1)$ lies on line ℓ_3
199 : $P_{208961} = (0, 0, 50, 1)$ lies on line ℓ_0	250 : $P_{261363} = (50, 50, 62, 1)$ lies on line ℓ_2
200 : $P_{208962} = (1, 0, 50, 1)$ lies on line ℓ_1	251 : $P_{262209} = (0, 0, 63, 1)$ lies on line ℓ_0
201 : $P_{209351} = (6, 6, 50, 1)$ lies on line ℓ_3	252 : $P_{262210} = (1, 0, 63, 1)$ lies on line ℓ_1
202 : $P_{212406} = (53, 53, 50, 1)$ lies on line ℓ_2	253 : $P_{262859} = (10, 10, 63, 1)$ lies on line ℓ_2
203 : $P_{213057} = (0, 0, 51, 1)$ lies on line ℓ_0	254 : $P_{265589} = (52, 52, 63, 1)$ lies on line ℓ_3
204 : $P_{213058} = (1, 0, 51, 1)$ lies on line ℓ_1	

The single points on the surface are:

Points on surface but on no line

The surface has 3904 points not on any line:
Too many to print.

Line Intersection Graph

	0	1	2	3
0	0	1	1	1
1	1	0	0	0
2	1	0	0	1
3	1	0	1	0

Neighbor sets in the line intersection graph:

Line 0 intersects

Line	ℓ_1	ℓ_2	ℓ_3
in point	P_2	P_{8258}	P_{8258}

Line 1 intersects

Line	ℓ_0
in point	P_2

Line 2 intersects

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

Line 3 intersects

Line	ℓ_0	ℓ_2
in point	P_{8258}	P_{8258}

The surface has 4161 points:

Too many to print.