Rank-73987 over GF(64)

January 15, 2021

The equation

The equation of the surface is :
$$X_1^2 X_2 + X_0 X_3^2 + X_0 X_1 X_2 = 0$$

(0, 0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0, 1, 0, 0, 1, 0, 0, 0)
The point rank of the equation over GF(64) is 1090785349

General information

Number of lines	5
Number of points	4225
Number of singular points	3
Number of Eckardt points	1
Number of double points	4
Number of single points	314
Number of points off lines	3906
Number of Hesse planes	0
Number of axes	0
Type of points on lines	65^5
Type of lines on points	$3, 2^4, 1^{314}, 0^{3906}$

Singular Points

The surface has 3 singular points:

$0: P_0 = \mathbf{P}(1,0,0,0) = \mathbf{P}(1,0,0,0)$ $2: P_5 = \mathbf{P}(1,1,0,0) = \mathbf{P}(1,1,0,0)$
$1: P_2 = \mathbf{P}(0,0,1,0) = \mathbf{P}(0,0,1,0)$

The 5 Lines

The lines and their Pluecker coordinates are:

$$\ell_0 = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \end{bmatrix}_0 = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \end{bmatrix}_0 = \mathbf{Pl}(1,0,0,0,0,0)_0$$

$$\ell_1 = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{4096} = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{4096} = \mathbf{Pl}(0,0,1,0,0,0)_2$$

$$\ell_2 = \begin{bmatrix} 1 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{8257} = \begin{bmatrix} 1 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{8257} = \mathbf{Pl}(0,0,1,0,0,1)_{270528}$$

$$\ell_3 = \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{17043520} = \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{17043520} = \mathbf{Pl}(0,0,0,1,0,0)_{129}$$

$$\ell_4 = \begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{17047616} = \begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{17047616} = \mathbf{Pl}(0,1,0,0,0,0)_1$$

Rank of lines: (0, 4096, 8257, 17043520, 17047616)
Rank of points on Klein quadric: (0, 2, 270528, 129, 1)

Eckardt Points

The surface has 1 Eckardt points:
$0 : P_2 = \mathbf{P}(0,0,1,0) = \mathbf{P}(0,0,1,0)$.

Double Points

The surface has 4 Double points:
The double points on the surface are:

$P_0 = (1,0,0,0) = \ell_0 \cap \ell_1$ $P_3 = (0,0,0,1) = \ell_3 \cap \ell_4$
$P_5 = (1,1,0,0) = \ell_0 \cap \ell_2$
$P_1 = (0,1,0,0) = \ell_0 \cap \ell_3$

Single Points

The surface has 314 single points:
The single points on the surface are:

$0 : P_6 = (2,1,0,0)$ lies on line ℓ_0 $18 : P_{24} = (20,1,0,0)$ lies on line ℓ_0
$1 : P_7 = (3,1,0,0)$ lies on line ℓ_0 $19 : P_{25} = (21,1,0,0)$ lies on line ℓ_0
$2 : P_8 = (4,1,0,0)$ lies on line ℓ_0 $20 : P_{26} = (22,1,0,0)$ lies on line ℓ_0
$3 : P_9 = (5,1,0,0)$ lies on line ℓ_0 $21 : P_{27} = (23,1,0,0)$ lies on line ℓ_0
$4 : P_{10} = (6,1,0,0)$ lies on line ℓ_0 $22 : P_{28} = (24,1,0,0)$ lies on line ℓ_0
$5 : P_{11} = (7,1,0,0)$ lies on line ℓ_0 $23 : P_{29} = (25,1,0,0)$ lies on line ℓ_0
$6 : P_{12} = (8,1,0,0)$ lies on line ℓ_0 $24 : P_{30} = (26,1,0,0)$ lies on line ℓ_0
$7 : P_{13} = (9,1,0,0)$ lies on line ℓ_0 $25 : P_{31} = (27,1,0,0)$ lies on line ℓ_0
$8 : P_{14} = (10,1,0,0)$ lies on line ℓ_0 $26 : P_{32} = (28,1,0,0)$ lies on line ℓ_0
$9 : P_{15} = (11,1,0,0)$ lies on line ℓ_0 $27 : P_{33} = (29,1,0,0)$ lies on line ℓ_0
$10 : P_{16} = (12,1,0,0)$ lies on line ℓ_0 $28 : P_{34} = (30,1,0,0)$ lies on line ℓ_0
$11 : P_{17} = (13,1,0,0)$ lies on line ℓ_0 $29 : P_{35} = (31,1,0,0)$ lies on line ℓ_0
$12 : P_{18} = (14,1,0,0)$ lies on line ℓ_0 $30 : P_{36} = (32,1,0,0)$ lies on line ℓ_0
$13 : P_{19} = (15,1,0,0)$ lies on line ℓ_0 $31 : P_{37} = (33,1,0,0)$ lies on line ℓ_0
$14 : P_{20} = (16,1,0,0)$ lies on line ℓ_0 $32 : P_{38} = (34,1,0,0)$ lies on line ℓ_0
$15 : P_{21} = (17,1,0,0)$ lies on line ℓ_0 $33 : P_{39} = (35,1,0,0)$ lies on line ℓ_0
$16 : P_{22} = (18,1,0,0)$ lies on line ℓ_0 $34 : P_{40} = (36,1,0,0)$ lies on line ℓ_0
$17 : P_{23} = (19,1,0,0)$ lies on line ℓ_0 $35 : P_{41} = (37,1,0,0)$ lies on line ℓ_0

$36 : P_{42} = (38, 1, 0, 0)$ lies on line ℓ_0
$37 : P_{43} = (39, 1, 0, 0)$ lies on line ℓ_0
$38 : P_{44} = (40, 1, 0, 0)$ lies on line ℓ_0
$39 : P_{45} = (41, 1, 0, 0)$ lies on line ℓ_0
$40 : P_{46} = (42, 1, 0, 0)$ lies on line ℓ_0
$41 : P_{47} = (43, 1, 0, 0)$ lies on line ℓ_0
$42 : P_{48} = (44, 1, 0, 0)$ lies on line ℓ_0
$43 : P_{49} = (45, 1, 0, 0)$ lies on line ℓ_0
$44 : P_{50} = (46, 1, 0, 0)$ lies on line ℓ_0
$45 : P_{51} = (47, 1, 0, 0)$ lies on line ℓ_0
$46 : P_{52} = (48, 1, 0, 0)$ lies on line ℓ_0
$47 : P_{53} = (49, 1, 0, 0)$ lies on line ℓ_0
$48 : P_{54} = (50, 1, 0, 0)$ lies on line ℓ_0
$49 : P_{55} = (51, 1, 0, 0)$ lies on line ℓ_0
$50 : P_{56} = (52, 1, 0, 0)$ lies on line ℓ_0
$51 : P_{57} = (53, 1, 0, 0)$ lies on line ℓ_0
$52 : P_{58} = (54, 1, 0, 0)$ lies on line ℓ_0
$53 : P_{59} = (55, 1, 0, 0)$ lies on line ℓ_0
$54 : P_{60} = (56, 1, 0, 0)$ lies on line ℓ_0
$55 : P_{61} = (57, 1, 0, 0)$ lies on line ℓ_0
$56 : P_{62} = (58, 1, 0, 0)$ lies on line ℓ_0
$57 : P_{63} = (59, 1, 0, 0)$ lies on line ℓ_0
$58 : P_{64} = (60, 1, 0, 0)$ lies on line ℓ_0
$59 : P_{65} = (61, 1, 0, 0)$ lies on line ℓ_0
$60 : P_{66} = (62, 1, 0, 0)$ lies on line ℓ_0
$61 : P_{67} = (63, 1, 0, 0)$ lies on line ℓ_0
$62 : P_{68} = (1, 0, 1, 0)$ lies on line ℓ_1
$63 : P_{69} = (2, 0, 1, 0)$ lies on line ℓ_1
$64 : P_{70} = (3, 0, 1, 0)$ lies on line ℓ_1
$65 : P_{71} = (4, 0, 1, 0)$ lies on line ℓ_1
$66 : P_{72} = (5, 0, 1, 0)$ lies on line ℓ_1
$67 : P_{73} = (6, 0, 1, 0)$ lies on line ℓ_1
$68 : P_{74} = (7, 0, 1, 0)$ lies on line ℓ_1
$69 : P_{75} = (8, 0, 1, 0)$ lies on line ℓ_1
$70 : P_{76} = (9, 0, 1, 0)$ lies on line ℓ_1
$71 : P_{77} = (10, 0, 1, 0)$ lies on line ℓ_1
$72 : P_{78} = (11, 0, 1, 0)$ lies on line ℓ_1
$73 : P_{79} = (12, 0, 1, 0)$ lies on line ℓ_1
$74 : P_{80} = (13, 0, 1, 0)$ lies on line ℓ_1
$75 : P_{81} = (14, 0, 1, 0)$ lies on line ℓ_1
$76 : P_{82} = (15, 0, 1, 0)$ lies on line ℓ_1
$77 : P_{83} = (16, 0, 1, 0)$ lies on line ℓ_1
$78 : P_{84} = (17, 0, 1, 0)$ lies on line ℓ_1
$79 : P_{85} = (18, 0, 1, 0)$ lies on line ℓ_1
$80 : P_{86} = (19, 0, 1, 0)$ lies on line ℓ_1
$81 : P_{87} = (20, 0, 1, 0)$ lies on line ℓ_1
$82 : P_{88} = (21, 0, 1, 0)$ lies on line ℓ_1
$83 : P_{89} = (22, 0, 1, 0)$ lies on line ℓ_1
$84 : P_{90} = (23, 0, 1, 0)$ lies on line ℓ_1
$85 : P_{91} = (24, 0, 1, 0)$ lies on line ℓ_1
$86 : P_{92} = (25, 0, 1, 0)$ lies on line ℓ_1
$87 : P_{93} = (26, 0, 1, 0)$ lies on line ℓ_1
$88 : P_{94} = (27, 0, 1, 0)$ lies on line ℓ_1
$89 : P_{95} = (28, 0, 1, 0)$ lies on line ℓ_1

$90 : P_{96} = (29, 0, 1, 0)$ lies on line ℓ_1
$91 : P_{97} = (30, 0, 1, 0)$ lies on line ℓ_1
$92 : P_{98} = (31, 0, 1, 0)$ lies on line ℓ_1
$93 : P_{99} = (32, 0, 1, 0)$ lies on line ℓ_1
$94 : P_{100} = (33, 0, 1, 0)$ lies on line ℓ_1
$95 : P_{101} = (34, 0, 1, 0)$ lies on line ℓ_1
$96 : P_{102} = (35, 0, 1, 0)$ lies on line ℓ_1
$97 : P_{103} = (36, 0, 1, 0)$ lies on line ℓ_1
$98 : P_{104} = (37, 0, 1, 0)$ lies on line ℓ_1
$99 : P_{105} = (38, 0, 1, 0)$ lies on line ℓ_1
$100 : P_{106} = (39, 0, 1, 0)$ lies on line ℓ_1
$101 : P_{107} = (40, 0, 1, 0)$ lies on line ℓ_1
$102 : P_{108} = (41, 0, 1, 0)$ lies on line ℓ_1
$103 : P_{109} = (42, 0, 1, 0)$ lies on line ℓ_1
$104 : P_{110} = (43, 0, 1, 0)$ lies on line ℓ_1
$105 : P_{111} = (44, 0, 1, 0)$ lies on line ℓ_1
$106 : P_{112} = (45, 0, 1, 0)$ lies on line ℓ_1
$107 : P_{113} = (46, 0, 1, 0)$ lies on line ℓ_1
$108 : P_{114} = (47, 0, 1, 0)$ lies on line ℓ_1
$109 : P_{115} = (48, 0, 1, 0)$ lies on line ℓ_1
$110 : P_{116} = (49, 0, 1, 0)$ lies on line ℓ_1
$111 : P_{117} = (50, 0, 1, 0)$ lies on line ℓ_1
$112 : P_{118} = (51, 0, 1, 0)$ lies on line ℓ_1
$113 : P_{119} = (52, 0, 1, 0)$ lies on line ℓ_1
$114 : P_{120} = (53, 0, 1, 0)$ lies on line ℓ_1
$115 : P_{121} = (54, 0, 1, 0)$ lies on line ℓ_1
$116 : P_{122} = (55, 0, 1, 0)$ lies on line ℓ_1
$117 : P_{123} = (56, 0, 1, 0)$ lies on line ℓ_1
$118 : P_{124} = (57, 0, 1, 0)$ lies on line ℓ_1
$119 : P_{125} = (58, 0, 1, 0)$ lies on line ℓ_1
$120 : P_{126} = (59, 0, 1, 0)$ lies on line ℓ_1
$121 : P_{127} = (60, 0, 1, 0)$ lies on line ℓ_1
$122 : P_{128} = (61, 0, 1, 0)$ lies on line ℓ_1
$123 : P_{129} = (62, 0, 1, 0)$ lies on line ℓ_1
$124 : P_{130} = (63, 0, 1, 0)$ lies on line ℓ_1
$125 : P_{132} = (1, 1, 1, 0)$ lies on line ℓ_2
$126 : P_{197} = (2, 2, 1, 0)$ lies on line ℓ_2
$127 : P_{262} = (3, 3, 1, 0)$ lies on line ℓ_2
$128 : P_{327} = (4, 4, 1, 0)$ lies on line ℓ_2
$129 : P_{392} = (5, 5, 1, 0)$ lies on line ℓ_2
$130 : P_{457} = (6, 6, 1, 0)$ lies on line ℓ_2
$131 : P_{522} = (7, 7, 1, 0)$ lies on line ℓ_2
$132 : P_{587} = (8, 8, 1, 0)$ lies on line ℓ_2
$133 : P_{652} = (9, 9, 1, 0)$ lies on line ℓ_2
$134 : P_{717} = (10, 10, 1, 0)$ lies on line ℓ_2
$135 : P_{782} = (11, 11, 1, 0)$ lies on line ℓ_2
$136 : P_{847} = (12, 12, 1, 0)$ lies on line ℓ_2
$137 : P_{912} = (13, 13, 1, 0)$ lies on line ℓ_2
$138 : P_{977} = (14, 14, 1, 0)$ lies on line ℓ_2
$139 : P_{1042} = (15, 15, 1, 0)$ lies on line ℓ_2
$140 : P_{1107} = (16, 16, 1, 0)$ lies on line ℓ_2
$141 : P_{1172} = (17, 17, 1, 0)$ lies on line ℓ_2
$142 : P_{1237} = (18, 18, 1, 0)$ lies on line ℓ_2
$143 : P_{1302} = (19, 19, 1, 0)$ lies on line ℓ_2

$144: P_{1367} = (20, 20, 1, 0)$ lies on line ℓ_2

$145: P_{1432} = (21, 21, 1, 0)$ lies on line ℓ_2

$146: P_{1497} = (22, 22, 1, 0)$ lies on line ℓ_2

$147: P_{1562} = (23, 23, 1, 0)$ lies on line ℓ_2

$148: P_{1627} = (24, 24, 1, 0)$ lies on line ℓ_2

$149: P_{1692} = (25, 25, 1, 0)$ lies on line ℓ_2

$150: P_{1757} = (26, 26, 1, 0)$ lies on line ℓ_2

$151: P_{1822} = (27, 27, 1, 0)$ lies on line ℓ_2

$152: P_{1887} = (28, 28, 1, 0)$ lies on line ℓ_2

$153: P_{1952} = (29, 29, 1, 0)$ lies on line ℓ_2

$154: P_{2017} = (30, 30, 1, 0)$ lies on line ℓ_2

$155: P_{2082} = (31, 31, 1, 0)$ lies on line ℓ_2

$156: P_{2147} = (32, 32, 1, 0)$ lies on line ℓ_2

$157: P_{2212} = (33, 33, 1, 0)$ lies on line ℓ_2

$158: P_{2277} = (34, 34, 1, 0)$ lies on line ℓ_2

$159: P_{2342} = (35, 35, 1, 0)$ lies on line ℓ_2

$160: P_{2407} = (36, 36, 1, 0)$ lies on line ℓ_2

$161: P_{2472} = (37, 37, 1, 0)$ lies on line ℓ_2

$162: P_{2537} = (38, 38, 1, 0)$ lies on line ℓ_2

$163: P_{2602} = (39, 39, 1, 0)$ lies on line ℓ_2

$164: P_{2667} = (40, 40, 1, 0)$ lies on line ℓ_2

$165: P_{2732} = (41, 41, 1, 0)$ lies on line ℓ_2

$166: P_{2797} = (42, 42, 1, 0)$ lies on line ℓ_2

$167: P_{2862} = (43, 43, 1, 0)$ lies on line ℓ_2

$168: P_{2927} = (44, 44, 1, 0)$ lies on line ℓ_2

$169: P_{2992} = (45, 45, 1, 0)$ lies on line ℓ_2

$170: P_{3057} = (46, 46, 1, 0)$ lies on line ℓ_2

$171: P_{3122} = (47, 47, 1, 0)$ lies on line ℓ_2

$172: P_{3187} = (48, 48, 1, 0)$ lies on line ℓ_2

$173: P_{3252} = (49, 49, 1, 0)$ lies on line ℓ_2

$174: P_{3317} = (50, 50, 1, 0)$ lies on line ℓ_2

$175: P_{3382} = (51, 51, 1, 0)$ lies on line ℓ_2

$176: P_{3447} = (52, 52, 1, 0)$ lies on line ℓ_2

$177: P_{3512} = (53, 53, 1, 0)$ lies on line ℓ_2

$178: P_{3577} = (54, 54, 1, 0)$ lies on line ℓ_2

$179: P_{3642} = (55, 55, 1, 0)$ lies on line ℓ_2

$180: P_{3707} = (56, 56, 1, 0)$ lies on line ℓ_2

$181: P_{3772} = (57, 57, 1, 0)$ lies on line ℓ_2

$182: P_{3837} = (58, 58, 1, 0)$ lies on line ℓ_2

$183: P_{3902} = (59, 59, 1, 0)$ lies on line ℓ_2

$184: P_{3967} = (60, 60, 1, 0)$ lies on line ℓ_2

$185: P_{4032} = (61, 61, 1, 0)$ lies on line ℓ_2

$186: P_{4097} = (62, 62, 1, 0)$ lies on line ℓ_2

$187: P_{4162} = (63, 63, 1, 0)$ lies on line ℓ_2

$188: P_{4226} = (0, 1, 0, 1)$ lies on line ℓ_3

$189: P_{4290} = (0, 2, 0, 1)$ lies on line ℓ_3

$190: P_{4354} = (0, 3, 0, 1)$ lies on line ℓ_3

$191: P_{4418} = (0, 4, 0, 1)$ lies on line ℓ_3

$192: P_{4482} = (0, 5, 0, 1)$ lies on line ℓ_3

$193: P_{4546} = (0, 6, 0, 1)$ lies on line ℓ_3

$194: P_{4610} = (0, 7, 0, 1)$ lies on line ℓ_3

$195: P_{4674} = (0, 8, 0, 1)$ lies on line ℓ_3

$196: P_{4738} = (0, 9, 0, 1)$ lies on line ℓ_3

$197: P_{4802} = (0, 10, 0, 1)$ lies on line ℓ_3

$198: P_{4866} = (0, 11, 0, 1)$ lies on line ℓ_3

$199: P_{4930} = (0, 12, 0, 1)$ lies on line ℓ_3

$200: P_{4994} = (0, 13, 0, 1)$ lies on line ℓ_3

$201: P_{5058} = (0, 14, 0, 1)$ lies on line ℓ_3

$202: P_{5122} = (0, 15, 0, 1)$ lies on line ℓ_3

$203: P_{5186} = (0, 16, 0, 1)$ lies on line ℓ_3

$204: P_{5250} = (0, 17, 0, 1)$ lies on line ℓ_3

$205: P_{5314} = (0, 18, 0, 1)$ lies on line ℓ_3

$206: P_{5378} = (0, 19, 0, 1)$ lies on line ℓ_3

$207: P_{5442} = (0, 20, 0, 1)$ lies on line ℓ_3

$208: P_{5506} = (0, 21, 0, 1)$ lies on line ℓ_3

$209: P_{5570} = (0, 22, 0, 1)$ lies on line ℓ_3

$210: P_{5634} = (0, 23, 0, 1)$ lies on line ℓ_3

$211: P_{5698} = (0, 24, 0, 1)$ lies on line ℓ_3

$212: P_{5762} = (0, 25, 0, 1)$ lies on line ℓ_3

$213: P_{5826} = (0, 26, 0, 1)$ lies on line ℓ_3

$214: P_{5890} = (0, 27, 0, 1)$ lies on line ℓ_3

$215: P_{5954} = (0, 28, 0, 1)$ lies on line ℓ_3

$216: P_{6018} = (0, 29, 0, 1)$ lies on line ℓ_3

$217: P_{6082} = (0, 30, 0, 1)$ lies on line ℓ_3

$218: P_{6146} = (0, 31, 0, 1)$ lies on line ℓ_3

$219: P_{6210} = (0, 32, 0, 1)$ lies on line ℓ_3

$220: P_{6274} = (0, 33, 0, 1)$ lies on line ℓ_3

$221: P_{6338} = (0, 34, 0, 1)$ lies on line ℓ_3

$222: P_{6402} = (0, 35, 0, 1)$ lies on line ℓ_3

$223: P_{6466} = (0, 36, 0, 1)$ lies on line ℓ_3

$224: P_{6530} = (0, 37, 0, 1)$ lies on line ℓ_3

$225: P_{6594} = (0, 38, 0, 1)$ lies on line ℓ_3

$226: P_{6658} = (0, 39, 0, 1)$ lies on line ℓ_3

$227: P_{6722} = (0, 40, 0, 1)$ lies on line ℓ_3

$228: P_{6786} = (0, 41, 0, 1)$ lies on line ℓ_3

$229: P_{6850} = (0, 42, 0, 1)$ lies on line ℓ_3

$230: P_{6914} = (0, 43, 0, 1)$ lies on line ℓ_3

$231: P_{6978} = (0, 44, 0, 1)$ lies on line ℓ_3

$232: P_{7042} = (0, 45, 0, 1)$ lies on line ℓ_3

$233: P_{7106} = (0, 46, 0, 1)$ lies on line ℓ_3

$234: P_{7170} = (0, 47, 0, 1)$ lies on line ℓ_3

$235: P_{7234} = (0, 48, 0, 1)$ lies on line ℓ_3

$236: P_{7298} = (0, 49, 0, 1)$ lies on line ℓ_3

$237: P_{7362} = (0, 50, 0, 1)$ lies on line ℓ_3

$238: P_{7426} = (0, 51, 0, 1)$ lies on line ℓ_3

$239: P_{7490} = (0, 52, 0, 1)$ lies on line ℓ_3

$240: P_{7554} = (0, 53, 0, 1)$ lies on line ℓ_3

$241: P_{7618} = (0, 54, 0, 1)$ lies on line ℓ_3

$242: P_{7682} = (0, 55, 0, 1)$ lies on line ℓ_3

$243: P_{7746} = (0, 56, 0, 1)$ lies on line ℓ_3

$244: P_{7810} = (0, 57, 0, 1)$ lies on line ℓ_3

$245: P_{7874} = (0, 58, 0, 1)$ lies on line ℓ_3

$246: P_{7938} = (0, 59, 0, 1)$ lies on line ℓ_3

$247: P_{8002} = (0, 60, 0, 1)$ lies on line ℓ_3

$248: P_{8066} = (0, 61, 0, 1)$ lies on line ℓ_3

$249: P_{8130} = (0, 62, 0, 1)$ lies on line ℓ_3

$250: P_{8194} = (0, 63, 0, 1)$ lies on line ℓ_3

$251: P_{8258} = (0, 0, 1, 1)$ lies on line ℓ_4

252 : $P_{12353} = (0, 0, 2, 1)$ lies on line ℓ_4
253 : $P_{16449} = (0, 0, 3, 1)$ lies on line ℓ_4
254 : $P_{20545} = (0, 0, 4, 1)$ lies on line ℓ_4
255 : $P_{24641} = (0, 0, 5, 1)$ lies on line ℓ_4
256 : $P_{28737} = (0, 0, 6, 1)$ lies on line ℓ_4
257 : $P_{32833} = (0, 0, 7, 1)$ lies on line ℓ_4
258 : $P_{36929} = (0, 0, 8, 1)$ lies on line ℓ_4
259 : $P_{41025} = (0, 0, 9, 1)$ lies on line ℓ_4
260 : $P_{45121} = (0, 0, 10, 1)$ lies on line ℓ_4
261 : $P_{49217} = (0, 0, 11, 1)$ lies on line ℓ_4
262 : $P_{53313} = (0, 0, 12, 1)$ lies on line ℓ_4
263 : $P_{57409} = (0, 0, 13, 1)$ lies on line ℓ_4
264 : $P_{61505} = (0, 0, 14, 1)$ lies on line ℓ_4
265 : $P_{65601} = (0, 0, 15, 1)$ lies on line ℓ_4
266 : $P_{69697} = (0, 0, 16, 1)$ lies on line ℓ_4
267 : $P_{73793} = (0, 0, 17, 1)$ lies on line ℓ_4
268 : $P_{77889} = (0, 0, 18, 1)$ lies on line ℓ_4
269 : $P_{81985} = (0, 0, 19, 1)$ lies on line ℓ_4
270 : $P_{86081} = (0, 0, 20, 1)$ lies on line ℓ_4
271 : $P_{90177} = (0, 0, 21, 1)$ lies on line ℓ_4
272 : $P_{94273} = (0, 0, 22, 1)$ lies on line ℓ_4
273 : $P_{98369} = (0, 0, 23, 1)$ lies on line ℓ_4
274 : $P_{102465} = (0, 0, 24, 1)$ lies on line ℓ_4
275 : $P_{106561} = (0, 0, 25, 1)$ lies on line ℓ_4
276 : $P_{110657} = (0, 0, 26, 1)$ lies on line ℓ_4
277 : $P_{114753} = (0, 0, 27, 1)$ lies on line ℓ_4
278 : $P_{118849} = (0, 0, 28, 1)$ lies on line ℓ_4
279 : $P_{122945} = (0, 0, 29, 1)$ lies on line ℓ_4
280 : $P_{127041} = (0, 0, 30, 1)$ lies on line ℓ_4
281 : $P_{131137} = (0, 0, 31, 1)$ lies on line ℓ_4
282 : $P_{135233} = (0, 0, 32, 1)$ lies on line ℓ_4
283 : $P_{139329} = (0, 0, 33, 1)$ lies on line ℓ_4

284 : $P_{143425} = (0, 0, 34, 1)$ lies on line ℓ_4
285 : $P_{147521} = (0, 0, 35, 1)$ lies on line ℓ_4
286 : $P_{151617} = (0, 0, 36, 1)$ lies on line ℓ_4
287 : $P_{155713} = (0, 0, 37, 1)$ lies on line ℓ_4
288 : $P_{159809} = (0, 0, 38, 1)$ lies on line ℓ_4
289 : $P_{163905} = (0, 0, 39, 1)$ lies on line ℓ_4
290 : $P_{168001} = (0, 0, 40, 1)$ lies on line ℓ_4
291 : $P_{172097} = (0, 0, 41, 1)$ lies on line ℓ_4
292 : $P_{176193} = (0, 0, 42, 1)$ lies on line ℓ_4
293 : $P_{180289} = (0, 0, 43, 1)$ lies on line ℓ_4
294 : $P_{184385} = (0, 0, 44, 1)$ lies on line ℓ_4
295 : $P_{188481} = (0, 0, 45, 1)$ lies on line ℓ_4
296 : $P_{192577} = (0, 0, 46, 1)$ lies on line ℓ_4
297 : $P_{196673} = (0, 0, 47, 1)$ lies on line ℓ_4
298 : $P_{200769} = (0, 0, 48, 1)$ lies on line ℓ_4
299 : $P_{204865} = (0, 0, 49, 1)$ lies on line ℓ_4
300 : $P_{208961} = (0, 0, 50, 1)$ lies on line ℓ_4
301 : $P_{213057} = (0, 0, 51, 1)$ lies on line ℓ_4
302 : $P_{217153} = (0, 0, 52, 1)$ lies on line ℓ_4
303 : $P_{221249} = (0, 0, 53, 1)$ lies on line ℓ_4
304 : $P_{225345} = (0, 0, 54, 1)$ lies on line ℓ_4
305 : $P_{229441} = (0, 0, 55, 1)$ lies on line ℓ_4
306 : $P_{233537} = (0, 0, 56, 1)$ lies on line ℓ_4
307 : $P_{237633} = (0, 0, 57, 1)$ lies on line ℓ_4
308 : $P_{241729} = (0, 0, 58, 1)$ lies on line ℓ_4
309 : $P_{245825} = (0, 0, 59, 1)$ lies on line ℓ_4
310 : $P_{249921} = (0, 0, 60, 1)$ lies on line ℓ_4
311 : $P_{254017} = (0, 0, 61, 1)$ lies on line ℓ_4
312 : $P_{258113} = (0, 0, 62, 1)$ lies on line ℓ_4
313 : $P_{262209} = (0, 0, 63, 1)$ lies on line ℓ_4

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

Neighbor sets in the line intersection graph:
Line 0 intersects

Line	ℓ_1	ℓ_2	ℓ_3
in point	P_0	P_5	P_1

Line 1 intersects

Line	ℓ_0	ℓ_2	ℓ_4
in point	P_0	P_2	P_2

Line 2 intersects

Line	ℓ_0	ℓ_1	ℓ_4
in point	P_5	P_2	P_2

Line 3 intersects

Line	ℓ_0	ℓ_4
in point	P_1	P_3

Line 4 intersects

Line	ℓ_1	ℓ_2	ℓ_3
in point	P_2	P_2	P_3

The surface has 4225 points:
Too many to print.