Rank-76355 over GF(32)

January 15, 2021

The equation

The equation of the surface is :

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

(0, 0, 0, 0, 0, 0, 1, 0, 0, 1, 0, 1, 0, 1, 0, 0, 1, 0, 0, 0)
The point rank of the equation over GF(32) is -2112846811

General information

Number of lines	5
Number of points	1121
Number of singular points	0
Number of Eckardt points	1
Number of double points	3
Number of single points	156
Number of points off lines	961
Number of Hesse planes	0
Number of axes	0
Type of points on lines	33^5
Type of lines on points	$3, 2^3, 1^{156}, 0^{961}$

Singular Points

The surface has 0 singular points:

The 5 Lines

The lines and their Pluecker coordinates are:

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

$$\ell_1 = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{1024} = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{1024} = \mathbf{Pl}(0,0,1,0,0,0)_2$$

$$\ell_2 = \begin{bmatrix} 1 & 0 & 1 & 0 \\ 0 & 1 & 0 & 0 \end{bmatrix}_{1057} = \begin{bmatrix} 1 & 0 & 1 & 0 \\ 0 & 1 & 0 & 0 \end{bmatrix}_{1057} = \mathbf{Pl}(1,0,0,0,0,1)_{34850}$$

$$\ell_3 = \begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{1083424} = \begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{1083424} = \mathbf{Pl}(0,1,0,0,0,0)_1$$

$$\ell_4 = \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{34848} = \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{34848} = \mathbf{Pl}(0,1,1,0,0,0)_{34}$$

Rank of lines: (0, 1024, 1057, 1083424, 34848)
Rank of points on Klein quadric: (0, 2, 34850, 1, 34)

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

$P_0 = (1,0,0,0) = \ell_0 \cap \ell_1$ $P_{36} = (1,0,1,0) = \ell_1 \cap \ell_2$
$P_1 = (0,1,0,0) = \ell_0 \cap \ell_2$

Single Points

The surface has 156 single points:
The single points on the surface are:

$0 : P_3 = (0,0,0,1)$ lies on line ℓ_3 $22 : P_{26} = (22,1,0,0)$ lies on line ℓ_0
$1 : P_5 = (1,1,0,0)$ lies on line ℓ_0 $23 : P_{27} = (23,1,0,0)$ lies on line ℓ_0
$2 : P_6 = (2,1,0,0)$ lies on line ℓ_0 $24 : P_{28} = (24,1,0,0)$ lies on line ℓ_0
$3 : P_7 = (3,1,0,0)$ lies on line ℓ_0 $25 : P_{29} = (25,1,0,0)$ lies on line ℓ_0
$4 : P_8 = (4,1,0,0)$ lies on line ℓ_0 $26 : P_{30} = (26,1,0,0)$ lies on line ℓ_0
$5 : P_9 = (5,1,0,0)$ lies on line ℓ_0 $27 : P_{31} = (27,1,0,0)$ lies on line ℓ_0
$6 : P_{10} = (6,1,0,0)$ lies on line ℓ_0 $28 : P_{32} = (28,1,0,0)$ lies on line ℓ_0
$7 : P_{11} = (7,1,0,0)$ lies on line ℓ_0 $29 : P_{33} = (29,1,0,0)$ lies on line ℓ_0
$8 : P_{12} = (8,1,0,0)$ lies on line ℓ_0 $30 : P_{34} = (30,1,0,0)$ lies on line ℓ_0
$9 : P_{13} = (9,1,0,0)$ lies on line ℓ_0 $31 : P_{35} = (31,1,0,0)$ lies on line ℓ_0
$10 : P_{14} = (10,1,0,0)$ lies on line ℓ_0 $32 : P_{37} = (2,0,1,0)$ lies on line ℓ_1
$11 : P_{15} = (11,1,0,0)$ lies on line ℓ_0 $33 : P_{38} = (3,0,1,0)$ lies on line ℓ_1
$12 : P_{16} = (12,1,0,0)$ lies on line ℓ_0 $34 : P_{39} = (4,0,1,0)$ lies on line ℓ_1
$13 : P_{17} = (13,1,0,0)$ lies on line ℓ_0 $35 : P_{40} = (5,0,1,0)$ lies on line ℓ_1
$14 : P_{18} = (14,1,0,0)$ lies on line ℓ_0 $36 : P_{41} = (6,0,1,0)$ lies on line ℓ_1
$15 : P_{19} = (15,1,0,0)$ lies on line ℓ_0 $37 : P_{42} = (7,0,1,0)$ lies on line ℓ_1
$16 : P_{20} = (16,1,0,0)$ lies on line ℓ_0 $38 : P_{43} = (8,0,1,0)$ lies on line ℓ_1
$17 : P_{21} = (17,1,0,0)$ lies on line ℓ_0 $39 : P_{44} = (9,0,1,0)$ lies on line ℓ_1
$18 : P_{22} = (18,1,0,0)$ lies on line ℓ_0 $40 : P_{45} = (10,0,1,0)$ lies on line ℓ_1
$19 : P_{23} = (19,1,0,0)$ lies on line ℓ_0 $41 : P_{46} = (11,0,1,0)$ lies on line ℓ_1
$20 : P_{24} = (20,1,0,0)$ lies on line ℓ_0 $42 : P_{47} = (12,0,1,0)$ lies on line ℓ_1
$21 : P_{25} = (21,1,0,0)$ lies on line ℓ_0 $43 : P_{48} = (13,0,1,0)$ lies on line ℓ_1

$44: P_{49} = (14, 0, 1, 0)$ lies on line ℓ_1

$45: P_{50} = (15, 0, 1, 0)$ lies on line ℓ_1

$46: P_{51} = (16, 0, 1, 0)$ lies on line ℓ_1

$47: P_{52} = (17, 0, 1, 0)$ lies on line ℓ_1

$48: P_{53} = (18, 0, 1, 0)$ lies on line ℓ_1

$49: P_{54} = (19, 0, 1, 0)$ lies on line ℓ_1

$50: P_{55} = (20, 0, 1, 0)$ lies on line ℓ_1

$51: P_{56} = (21, 0, 1, 0)$ lies on line ℓ_1

$52: P_{57} = (22, 0, 1, 0)$ lies on line ℓ_1

$53: P_{58} = (23, 0, 1, 0)$ lies on line ℓ_1

$54: P_{59} = (24, 0, 1, 0)$ lies on line ℓ_1

$55: P_{60} = (25, 0, 1, 0)$ lies on line ℓ_1

$56: P_{61} = (26, 0, 1, 0)$ lies on line ℓ_1

$57: P_{62} = (27, 0, 1, 0)$ lies on line ℓ_1

$58: P_{63} = (28, 0, 1, 0)$ lies on line ℓ_1

$59: P_{64} = (29, 0, 1, 0)$ lies on line ℓ_1

$60: P_{65} = (30, 0, 1, 0)$ lies on line ℓ_1

$61: P_{66} = (31, 0, 1, 0)$ lies on line ℓ_1

$62: P_{68} = (1, 1, 1, 0)$ lies on line ℓ_2

$63: P_{100} = (1, 2, 1, 0)$ lies on line ℓ_2

$64: P_{132} = (1, 3, 1, 0)$ lies on line ℓ_2

$65: P_{164} = (1, 4, 1, 0)$ lies on line ℓ_2

$66: P_{196} = (1, 5, 1, 0)$ lies on line ℓ_2

$67: P_{228} = (1, 6, 1, 0)$ lies on line ℓ_2

$68: P_{260} = (1, 7, 1, 0)$ lies on line ℓ_2

$69: P_{292} = (1, 8, 1, 0)$ lies on line ℓ_2

$70: P_{324} = (1, 9, 1, 0)$ lies on line ℓ_2

$71: P_{356} = (1, 10, 1, 0)$ lies on line ℓ_2

$72: P_{388} = (1, 11, 1, 0)$ lies on line ℓ_2

$73: P_{420} = (1, 12, 1, 0)$ lies on line ℓ_2

$74: P_{452} = (1, 13, 1, 0)$ lies on line ℓ_2

$75: P_{484} = (1, 14, 1, 0)$ lies on line ℓ_2

$76: P_{516} = (1, 15, 1, 0)$ lies on line ℓ_2

$77: P_{548} = (1, 16, 1, 0)$ lies on line ℓ_2

$78: P_{580} = (1, 17, 1, 0)$ lies on line ℓ_2

$79: P_{612} = (1, 18, 1, 0)$ lies on line ℓ_2

$80: P_{644} = (1, 19, 1, 0)$ lies on line ℓ_2

$81: P_{676} = (1, 20, 1, 0)$ lies on line ℓ_2

$82: P_{708} = (1, 21, 1, 0)$ lies on line ℓ_2

$83: P_{740} = (1, 22, 1, 0)$ lies on line ℓ_2

$84: P_{772} = (1, 23, 1, 0)$ lies on line ℓ_2

$85: P_{804} = (1, 24, 1, 0)$ lies on line ℓ_2

$86: P_{836} = (1, 25, 1, 0)$ lies on line ℓ_2

$87: P_{868} = (1, 26, 1, 0)$ lies on line ℓ_2

$88: P_{900} = (1, 27, 1, 0)$ lies on line ℓ_2

$89: P_{932} = (1, 28, 1, 0)$ lies on line ℓ_2

$90: P_{964} = (1, 29, 1, 0)$ lies on line ℓ_2

$91: P_{996} = (1, 30, 1, 0)$ lies on line ℓ_2

$92: P_{1028} = (1, 31, 1, 0)$ lies on line ℓ_2

$93: P_{1059} = (1, 0, 0, 1)$ lies on line ℓ_4

$94: P_{2082} = (0, 0, 1, 1)$ lies on line ℓ_3

$95: P_{2083} = (1, 0, 1, 1)$ lies on line ℓ_4

$96: P_{3105} = (0, 0, 2, 1)$ lies on line ℓ_3

$97: P_{3106} = (1, 0, 2, 1)$ lies on line ℓ_4

$98: P_{4129} = (0, 0, 3, 1)$ lies on line ℓ_3

$99: P_{4130} = (1, 0, 3, 1)$ lies on line ℓ_4

$100: P_{5153} = (0, 0, 4, 1)$ lies on line ℓ_3

$101: P_{5154} = (1, 0, 4, 1)$ lies on line ℓ_4

$102: P_{6177} = (0, 0, 5, 1)$ lies on line ℓ_3

$103: P_{6178} = (1, 0, 5, 1)$ lies on line ℓ_4

$104: P_{7201} = (0, 0, 6, 1)$ lies on line ℓ_3

$105: P_{7202} = (1, 0, 6, 1)$ lies on line ℓ_4

$106: P_{8225} = (0, 0, 7, 1)$ lies on line ℓ_3

$107: P_{8226} = (1, 0, 7, 1)$ lies on line ℓ_4

$108: P_{9249} = (0, 0, 8, 1)$ lies on line ℓ_3

$109: P_{9250} = (1, 0, 8, 1)$ lies on line ℓ_4

$110: P_{10273} = (0, 0, 9, 1)$ lies on line ℓ_3

$111: P_{10274} = (1, 0, 9, 1)$ lies on line ℓ_4

$112: P_{11297} = (0, 0, 10, 1)$ lies on line ℓ_3

$113: P_{11298} = (1, 0, 10, 1)$ lies on line ℓ_4

$114: P_{12321} = (0, 0, 11, 1)$ lies on line ℓ_3

$115: P_{12322} = (1, 0, 11, 1)$ lies on line ℓ_4

$116: P_{13345} = (0, 0, 12, 1)$ lies on line ℓ_3

$117: P_{13346} = (1, 0, 12, 1)$ lies on line ℓ_4

$118: P_{14369} = (0, 0, 13, 1)$ lies on line ℓ_3

$119: P_{14370} = (1, 0, 13, 1)$ lies on line ℓ_4

$120: P_{15393} = (0, 0, 14, 1)$ lies on line ℓ_3

$121: P_{15394} = (1, 0, 14, 1)$ lies on line ℓ_4

$122: P_{16417} = (0, 0, 15, 1)$ lies on line ℓ_3

$123: P_{16418} = (1, 0, 15, 1)$ lies on line ℓ_4

$124: P_{17441} = (0, 0, 16, 1)$ lies on line ℓ_3

$125: P_{17442} = (1, 0, 16, 1)$ lies on line ℓ_4

$126: P_{18465} = (0, 0, 17, 1)$ lies on line ℓ_3

$127: P_{18466} = (1, 0, 17, 1)$ lies on line ℓ_4

$128: P_{19489} = (0, 0, 18, 1)$ lies on line ℓ_3

$129: P_{19490} = (1, 0, 18, 1)$ lies on line ℓ_4

$130: P_{20513} = (0, 0, 19, 1)$ lies on line ℓ_3

$131: P_{20514} = (1, 0, 19, 1)$ lies on line ℓ_4

$132: P_{21537} = (0, 0, 20, 1)$ lies on line ℓ_3

$133: P_{21538} = (1, 0, 20, 1)$ lies on line ℓ_4

$134: P_{22561} = (0, 0, 21, 1)$ lies on line ℓ_3

$135: P_{22562} = (1, 0, 21, 1)$ lies on line ℓ_4

$136: P_{23585} = (0, 0, 22, 1)$ lies on line ℓ_3

$137: P_{23586} = (1, 0, 22, 1)$ lies on line ℓ_4

$138: P_{24609} = (0, 0, 23, 1)$ lies on line ℓ_3

$139: P_{24610} = (1, 0, 23, 1)$ lies on line ℓ_4

$140: P_{25633} = (0, 0, 24, 1)$ lies on line ℓ_3

$141: P_{25634} = (1, 0, 24, 1)$ lies on line ℓ_4

$142: P_{26657} = (0, 0, 25, 1)$ lies on line ℓ_3

$143: P_{26658} = (1, 0, 25, 1)$ lies on line ℓ_4

$144: P_{27681} = (0, 0, 26, 1)$ lies on line ℓ_3

$145: P_{27682} = (1, 0, 26, 1)$ lies on line ℓ_4

$146: P_{28705} = (0, 0, 27, 1)$ lies on line ℓ_3

$147: P_{28706} = (1, 0, 27, 1)$ lies on line ℓ_4

$148: P_{29729} = (0, 0, 28, 1)$ lies on line ℓ_3

$149: P_{29730} = (1, 0, 28, 1)$ lies on line ℓ_4

$150: P_{30753} = (0, 0, 29, 1)$ lies on line ℓ_3

$151: P_{30754} = (1, 0, 29, 1)$ lies on line ℓ_4

152 : $P_{31777} = (0, 0, 30, 1)$ lies on line ℓ_3

153 : $P_{31778} = (1, 0, 30, 1)$ lies on line ℓ_4

154 : $P_{32801} = (0, 0, 31, 1)$ lies on line ℓ_3

155 : $P_{32802} = (1, 0, 31, 1)$ lies on line ℓ_4

The single points on the surface are:

Points on surface but on no line

The surface has 961 points not on any line:
The points on the surface but not on lines are:

0 : $P_{1132} = (10, 2, 0, 1)$

1 : $P_{1133} = (11, 2, 0, 1)$

2 : $P_{1200} = (14, 4, 0, 1)$

3 : $P_{1201} = (15, 4, 0, 1)$

4 : $P_{1254} = (4, 6, 0, 1)$

5 : $P_{1255} = (5, 6, 0, 1)$

6 : $P_{1374} = (28, 9, 0, 1)$

7 : $P_{1375} = (29, 9, 0, 1)$

8 : $P_{1432} = (22, 11, 0, 1)$

9 : $P_{1433} = (23, 11, 0, 1)$

10 : $P_{1492} = (18, 13, 0, 1)$

11 : $P_{1493} = (19, 13, 0, 1)$

12 : $P_{1562} = (24, 15, 0, 1)$

13 : $P_{1563} = (25, 15, 0, 1)$

14 : $P_{1600} = (30, 16, 0, 1)$

15 : $P_{1601} = (31, 16, 0, 1)$

16 : $P_{1654} = (20, 18, 0, 1)$

17 : $P_{1655} = (21, 18, 0, 1)$

18 : $P_{1714} = (16, 20, 0, 1)$

19 : $P_{1715} = (17, 20, 0, 1)$

20 : $P_{1788} = (26, 22, 0, 1)$

21 : $P_{1789} = (27, 22, 0, 1)$

22 : $P_{1860} = (2, 25, 0, 1)$

23 : $P_{1861} = (3, 25, 0, 1)$

24 : $P_{1930} = (8, 27, 0, 1)$

25 : $P_{1931} = (9, 27, 0, 1)$

26 : $P_{1998} = (12, 29, 0, 1)$

27 : $P_{1999} = (13, 29, 0, 1)$

28 : $P_{2056} = (6, 31, 0, 1)$

29 : $P_{2057} = (7, 31, 0, 1)$

30 : $P_{2114} = (0, 1, 1, 1)$

31 : $P_{2166} = (21, 2, 1, 1)$

32 : $P_{2167} = (22, 2, 1, 1)$

33 : $P_{2234} = (25, 4, 1, 1)$

34 : $P_{2237} = (28, 4, 1, 1)$

35 : $P_{2289} = (16, 6, 1, 1)$

36 : $P_{2296} = (23, 6, 1, 1)$

37 : $P_{2332} = (27, 7, 1, 1)$

38 : $P_{2334} = (29, 7, 1, 1)$

39 : $P_{2517} = (20, 13, 1, 1)$

40 : $P_{2521} = (24, 13, 1, 1)$

41 : $P_{2599} = (6, 16, 1, 1)$

42 : $P_{2616} = (23, 16, 1, 1)$

43 : $P_{2734} = (13, 20, 1, 1)$

44 : $P_{2745} = (24, 20, 1, 1)$

45 : $P_{2755} = (2, 21, 1, 1)$

46 : $P_{2775} = (22, 21, 1, 1)$

47 : $P_{2787} = (2, 22, 1, 1)$

48 : $P_{2806} = (21, 22, 1, 1)$

49 : $P_{2823} = (6, 23, 1, 1)$

50 : $P_{2833} = (16, 23, 1, 1)$

51 : $P_{2862} = (13, 24, 1, 1)$

52 : $P_{2869} = (20, 24, 1, 1)$

53 : $P_{2885} = (4, 25, 1, 1)$

54 : $P_{2909} = (28, 25, 1, 1)$

55 : $P_{2952} = (7, 27, 1, 1)$

56 : $P_{2974} = (29, 27, 1, 1)$

57 : $P_{2981} = (4, 28, 1, 1)$

58 : $P_{3002} = (25, 28, 1, 1)$

59 : $P_{3016} = (7, 29, 1, 1)$

60 : $P_{3036} = (27, 29, 1, 1)$

61 : $P_{3228} = (27, 3, 2, 1)$

62 : $P_{3229} = (28, 3, 2, 1)$

63 : $P_{3233} = (0, 4, 2, 1)$

64 : $P_{3242} = (9, 4, 2, 1)$

65 : $P_{3298} = (1, 6, 2, 1)$

66 : $P_{3309} = (12, 6, 2, 1)$

67 : $P_{3333} = (4, 7, 2, 1)$

68 : $P_{3340} = (11, 7, 2, 1)$

69 : $P_{3461} = (4, 11, 2, 1)$

70 : $P_{3476} = (19, 11, 2, 1)$

71 : $P_{3499} = (10, 12, 2, 1)$

72 : $P_{3508} = (19, 12, 2, 1)$

73 : $P_{3633} = (16, 16, 2, 1)$

74 : $P_{3637} = (20, 16, 2, 1)$

75 : $P_{3665} = (16, 17, 2, 1)$

76 : $P_{3671} = (22, 17, 2, 1)$

77 : $P_{3690} = (9, 18, 2, 1)$

78 : $P_{3768} = (23, 20, 2, 1)$

79 : $P_{3772} = (27, 20, 2, 1)$

80 : $P_{3782} = (5, 21, 2, 1)$

81 : $P_{3788} = (11, 21, 2, 1)$

$82 : P_{3907} = (2, 25, 2, 1)$

$83 : P_{3925} = (20, 25, 2, 1)$

$84 : P_{3949} = (12, 26, 2, 1)$

$85 : P_{3965} = (28, 26, 2, 1)$

$86 : P_{3974} = (5, 27, 2, 1)$

$87 : P_{3992} = (23, 27, 2, 1)$

$88 : P_{4011} = (10, 28, 2, 1)$

$89 : P_{4023} = (22, 28, 2, 1)$

$90 : P_{4234} = (9, 3, 3, 1)$

$91 : P_{4238} = (13, 3, 3, 1)$

$92 : P_{4289} = (0, 5, 3, 1)$

$93 : P_{4303} = (14, 5, 3, 1)$

$94 : P_{4322} = (1, 6, 3, 1)$

$95 : P_{4331} = (10, 6, 3, 1)$

$96 : P_{4397} = (12, 8, 3, 1)$

$97 : P_{4406} = (21, 8, 3, 1)$

$98 : P_{4457} = (8, 10, 3, 1)$

$99 : P_{4472} = (23, 10, 3, 1)$

$100 : P_{4686} = (13, 17, 3, 1)$

$101 : P_{4699} = (26, 17, 3, 1)$

$102 : P_{4719} = (14, 18, 3, 1)$

$103 : P_{4733} = (28, 18, 3, 1)$

$104 : P_{4743} = (6, 19, 3, 1)$

$105 : P_{4760} = (23, 19, 3, 1)$

$106 : P_{4803} = (2, 21, 3, 1)$

$107 : P_{4826} = (25, 21, 3, 1)$

$108 : P_{4835} = (2, 22, 3, 1)$

$109 : P_{4861} = (28, 22, 3, 1)$

$110 : P_{4873} = (8, 23, 3, 1)$

$111 : P_{4886} = (21, 23, 3, 1)$

$112 : P_{4932} = (3, 25, 3, 1)$

$113 : P_{4941} = (12, 25, 3, 1)$

$114 : P_{5031} = (6, 28, 3, 1)$

$115 : P_{5066} = (9, 29, 3, 1)$

$116 : P_{5067} = (10, 29, 3, 1)$

$117 : P_{5114} = (25, 30, 3, 1)$

$118 : P_{5120} = (31, 30, 3, 1)$

$119 : P_{5147} = (26, 31, 3, 1)$

$120 : P_{5152} = (31, 31, 3, 1)$

$121 : P_{5234} = (17, 2, 4, 1)$

$122 : P_{5241} = (24, 2, 4, 1)$

$123 : P_{5272} = (23, 3, 4, 1)$

$124 : P_{5275} = (26, 3, 4, 1)$

$125 : P_{5315} = (2, 5, 4, 1)$

$126 : P_{5336} = (23, 5, 4, 1)$

$127 : P_{5349} = (4, 6, 4, 1)$

$128 : P_{5374} = (29, 6, 4, 1)$

$129 : P_{5452} = (11, 9, 4, 1)$

$130 : P_{5550} = (13, 12, 4, 1)$

$131 : P_{5562} = (25, 12, 4, 1)$

$132 : P_{5582} = (13, 13, 4, 1)$

$133 : P_{5598} = (29, 13, 4, 1)$

$134 : P_{5641} = (8, 15, 4, 1)$

$135 : P_{5649} = (16, 15, 4, 1)$

$136 : P_{5665} = (0, 16, 4, 1)$

$137 : P_{5676} = (11, 16, 4, 1)$

$138 : P_{5794} = (1, 20, 4, 1)$

$139 : P_{5819} = (26, 20, 4, 1)$

$140 : P_{5840} = (15, 21, 4, 1)$

$141 : P_{5841} = (16, 21, 4, 1)$

$142 : P_{5903} = (14, 23, 4, 1)$

$143 : P_{5914} = (25, 23, 4, 1)$

$144 : P_{5993} = (8, 26, 4, 1)$

$145 : P_{5999} = (14, 26, 4, 1)$

$146 : P_{6064} = (15, 28, 4, 1)$

$147 : P_{6066} = (17, 28, 4, 1)$

$148 : P_{6083} = (2, 29, 4, 1)$

$149 : P_{6105} = (24, 29, 4, 1)$

$150 : P_{6348} = (11, 5, 5, 1)$

$151 : P_{6364} = (27, 5, 5, 1)$

$152 : P_{6374} = (5, 6, 5, 1)$

$153 : P_{6395} = (26, 6, 5, 1)$

$154 : P_{6453} = (20, 8, 5, 1)$

$155 : P_{6457} = (24, 8, 5, 1)$

$156 : P_{6488} = (23, 9, 5, 1)$

$157 : P_{6495} = (30, 9, 5, 1)$

$158 : P_{6523} = (26, 10, 5, 1)$

$159 : P_{6525} = (28, 10, 5, 1)$

$160 : P_{6564} = (3, 12, 5, 1)$

$161 : P_{6588} = (27, 12, 5, 1)$

$162 : P_{6635} = (10, 14, 5, 1)$

$163 : P_{6649} = (24, 14, 5, 1)$

$164 : P_{6721} = (0, 17, 5, 1)$

$165 : P_{6751} = (30, 17, 5, 1)$

$166 : P_{6756} = (3, 18, 5, 1)$

$167 : P_{6771} = (18, 18, 5, 1)$

$168 : P_{6791} = (6, 19, 5, 1)$

$169 : P_{6803} = (18, 19, 5, 1)$

$170 : P_{6818} = (1, 20, 5, 1)$

$171 : P_{6831} = (14, 20, 5, 1)$

$172 : P_{6892} = (11, 22, 5, 1)$

$173 : P_{6895} = (14, 22, 5, 1)$

$174 : P_{6933} = (20, 23, 5, 1)$

$175 : P_{6955} = (10, 24, 5, 1)$

$176 : P_{6973} = (28, 24, 5, 1)$

$177 : P_{6981} = (4, 25, 5, 1)$

$178 : P_{7000} = (23, 25, 5, 1)$

$179 : P_{7077} = (4, 28, 5, 1)$

$180 : P_{7079} = (6, 28, 5, 1)$

$181 : P_{7363} = (2, 5, 6, 1)$

$182 : P_{7390} = (29, 5, 6, 1)$

$183 : P_{7429} = (4, 7, 6, 1)$

$184 : P_{7448} = (23, 7, 6, 1)$

$185 : P_{7465} = (8, 8, 6, 1)$

$186 : P_{7485} = (28, 8, 6, 1)$

$187 : P_{7497} = (8, 9, 6, 1)$

$188 : P_{7515} = (26, 9, 6, 1)$

$189 : P_{7534} = (13, 10, 6, 1)$

$190: P_{7542} = (21, 10, 6, 1)$

$191: P_{7557} = (4, 11, 6, 1)$

$192: P_{7579} = (26, 11, 6, 1)$

$193: P_{7588} = (3, 12, 6, 1)$

$194: P_{7600} = (15, 12, 6, 1)$

$195: P_{7672} = (23, 14, 6, 1)$

$196: P_{7700} = (19, 15, 6, 1)$

$197: P_{7702} = (21, 15, 6, 1)$

$198: P_{7778} = (1, 18, 6, 1)$

$199: P_{7780} = (3, 18, 6, 1)$

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$203: P_{7902} = (29, 21, 6, 1)$

$204: P_{8072} = (7, 27, 6, 1)$

$205: P_{8087} = (22, 27, 6, 1)$

$206: P_{8131} = (2, 29, 6, 1)$

$207: P_{8136} = (7, 29, 6, 1)$

$208: P_{8180} = (19, 30, 6, 1)$

$209: P_{8189} = (28, 30, 6, 1)$

$210: P_{8199} = (6, 31, 6, 1)$

$211: P_{8208} = (15, 31, 6, 1)$

$212: P_{8366} = (13, 4, 7, 1)$

$213: P_{8369} = (16, 4, 7, 1)$

$214: P_{8432} = (15, 6, 7, 1)$

$215: P_{8445} = (28, 6, 7, 1)$

$216: P_{8461} = (12, 7, 7, 1)$

$217: P_{8473} = (24, 7, 7, 1)$

$218: P_{8556} = (11, 10, 7, 1)$

$219: P_{8570} = (25, 10, 7, 1)$

$220: P_{8588} = (11, 11, 7, 1)$

$221: P_{8607} = (30, 11, 7, 1)$

$222: P_{8629} = (20, 12, 7, 1)$

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$224: P_{8669} = (28, 13, 7, 1)$

$225: P_{8689} = (16, 14, 7, 1)$

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$236: P_{8974} = (13, 23, 7, 1)$

$237: P_{9077} = (20, 26, 7, 1)$

$238: P_{9082} = (25, 26, 7, 1)$

$239: P_{9094} = (5, 27, 7, 1)$

$240: P_{9104} = (15, 27, 7, 1)$

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$242: P_{9234} = (17, 31, 7, 1)$

$243: P_{9314} = (1, 2, 8, 1)$

$244: P_{9329} = (16, 2, 8, 1)$

$245: P_{9349} = (4, 3, 8, 1)$

$246: P_{9374} = (29, 3, 8, 1)$

$247: P_{9429} = (20, 5, 8, 1)$

$248: P_{9433} = (24, 5, 8, 1)$

$249: P_{9456} = (15, 6, 8, 1)$

$250: P_{9468} = (27, 6, 8, 1)$

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$252: P_{9596} = (27, 10, 8, 1)$

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$259: P_{9891} = (2, 20, 8, 1)$

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$262: P_{10099} = (18, 26, 8, 1)$

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$264: P_{10121} = (8, 27, 8, 1)$

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$267: P_{10161} = (16, 28, 8, 1)$

$268: P_{10229} = (20, 30, 8, 1)$

$269: P_{10239} = (30, 30, 8, 1)$

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$273: P_{10355} = (18, 2, 9, 1)$

$274: P_{10423} = (22, 4, 9, 1)$

$275: P_{10475} = (10, 6, 9, 1)$

$276: P_{10489} = (24, 6, 9, 1)$

$277: P_{10508} = (11, 7, 9, 1)$

$278: P_{10513} = (16, 7, 9, 1)$

$279: P_{10545} = (16, 8, 9, 1)$

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$287: P_{10951} = (6, 21, 9, 1)$

$288: P_{10956} = (11, 21, 9, 1)$

$289: P_{11058} = (17, 24, 9, 1)$

$290: P_{11063} = (22, 24, 9, 1)$

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$293: P_{11188} = (19, 28, 9, 1)$

$294: P_{11190} = (21, 28, 9, 1)$

$295: P_{11206} = (5, 29, 9, 1)$

$296: P_{11211} = (10, 29, 9, 1)$

$297: P_{11238} = (5, 30, 9, 1)$

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$956 : P_{33685} = (20, 27, 31, 1)$
$957 : P_{33700} = (3, 28, 31, 1)$
$958 : P_{33717} = (20, 28, 31, 1)$
$959 : P_{33763} = (2, 30, 31, 1)$
$960 : P_{33775} = (14, 30, 31, 1)$

Line Intersection Graph

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

Neighbor sets in the line intersection graph:
Line 0 intersects

Line	ℓ_1	ℓ_2
in point	P_0	P_1

Line 1 intersects

Line	ℓ_0	ℓ_2	ℓ_3	ℓ_4
in point	P_0	P_{36}	P_2	P_2

Line 2 intersects

Line	ℓ_0	ℓ_1
in point	P_1	P_{36}

Line 3 intersects

Line	ℓ_1	ℓ_4
in point	P_2	P_2

Line 4 intersects

Line	ℓ_1	ℓ_3
in point	P_2	P_2

The surface has 1121 points:
Too many to print.