Rank-10566 over GF(8)

January 15, 2021

The equation

The equation of the surface is :

$$X_0^2X_3 + X_1^2X_2 + X_1X_2^2 + X_0X_3^2 = 0$$

(0, 0, 0, 0, 0, 0, 1, 0, 1, 0, 0, 1, 0, 1, 0, 0, 0, 0, 0, 0)
The point rank of the equation over GF(8) is 1244172880

General information

Number of lines	15
Number of points	105
Number of singular points	0
Number of Eckardt points	15
Number of double points	0
Number of single points	90
Number of points off lines	0
Number of Hesse planes	0
Number of axes	0
Type of points on lines	9^{15}
Type of lines on points	3^{15}, 1^{90}

Singular Points

The surface has 0 singular points:

The 15 Lines

The lines and their Pluecker coordinates are:

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

$$\ell_1 = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 1 & 0 \end{bmatrix}_1 = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 1 & 0 \end{bmatrix}_1 = \mathbf{Pl}(1,0,1,0,0,0)_3$$

$$\ell_2 = \left[\begin{array}{cccc} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{array}\right]_{64} = \left[\begin{array}{cccc} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{array}\right]_{64} = \mathbf{Pl}(0,0,1,0,0,0)_2$$

$$\ell_3 = \left[\begin{array}{cccc} 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{array}\right]_{4680} = \left[\begin{array}{cccc} 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{array}\right]_{4680} = \mathbf{Pl}(0,0,0,1,0,0)_{17}$$

$$\ell_4 = \left[\begin{array}{cccc} 1 & 0 & 0 & 1 \\ 0 & 1 & 0 & 0 \end{array}\right]_{584} = \left[\begin{array}{cccc} 1 & 0 & 0 & 1 \\ 0 & 1 & 0 & 0 \end{array}\right]_{584} = \mathbf{Pl}(1,0,0,1,0,0)_{18}$$

$$\ell_5 = \left[\begin{array}{cccc} 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{array}\right]_{4744} = \left[\begin{array}{cccc} 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{array}\right]_{4744} = \mathbf{Pl}(0,1,0,0,0,0)_1$$

$$\ell_6 = \left[\begin{array}{cccc} 1 & 0 & 0 & 1 \\ 0 & 0 & 1 & 0 \end{array}\right]_{648} = \left[\begin{array}{cccc} 1 & 0 & 0 & 1 \\ 0 & 0 & 1 & 0 \end{array}\right]_{648} = \mathbf{Pl}(0,1,1,0,0,0)_{10}$$

$$\ell_7 = \left[\begin{array}{cccc} 1 & 1 & 0 & 0 \\ 0 & 0 & 1 & 1 \end{array}\right]_{138} = \left[\begin{array}{cccc} 1 & 1 & 0 & 0 \\ 0 & 0 & 1 & 1 \end{array}\right]_{138} = \mathbf{Pl}(0,0,1,1,1,1)_{1322}$$

$$\ell_8 = \left[\begin{array}{cccc} 1 & 0 & 1 & 1 \\ 0 & 1 & 1 & 1 \end{array}\right]_{666} = \left[\begin{array}{cccc} 1 & 0 & 1 & 1 \\ 0 & 1 & 1 & 1 \end{array}\right]_{666} = \mathbf{Pl}(1,0,1,1,1,1)_{1323}$$

$$\ell_9 = \left[\begin{array}{cccc} 1 & 0 & 1 & 0 \\ 0 & 1 & 0 & 1 \end{array}\right]_{81} = \left[\begin{array}{cccc} 1 & 0 & 1 & 0 \\ 0 & 1 & 0 & 1 \end{array}\right]_{81} = \mathbf{Pl}(1,1,0,0,1,1)_{1217}$$

$$\ell_{10} = \left[\begin{array}{cccc} 1 & 0 & 1 & 0 \\ 0 & 1 & 1 & 1 \end{array}\right]_{82} = \left[\begin{array}{cccc} 1 & 0 & 1 & 0 \\ 0 & 1 & 1 & 1 \end{array}\right]_{82} = \mathbf{Pl}(1,1,1,0,1,1)_{1224}$$

$$\ell_{11} = \left[\begin{array}{cccc} 0 & 1 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{array}\right]_{4689} = \left[\begin{array}{cccc} 0 & 1 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{array}\right]_{4689} = \mathbf{Pl}(0,1,0,1,0,0)_{25}$$

$$\ell_{12} = \left[\begin{array}{cccc} 1 & 0 & 0 & 1 \\ 0 & 1 & 1 & 0 \end{array}\right]_{585} = \left[\begin{array}{cccc} 1 & 0 & 0 & 1 \\ 0 & 1 & 1 & 0 \end{array}\right]_{585} = \mathbf{Pl}(1,1,1,1,0,0)_{32}$$

$$\ell_{13} = \left[\begin{array}{cccc} 1 & 0 & 1 & 1 \\ 0 & 1 & 0 & 1 \end{array}\right]_{665} = \left[\begin{array}{cccc} 1 & 0 & 1 & 1 \\ 0 & 1 & 0 & 1 \end{array}\right]_{665} = \mathbf{Pl}(1,1,0,1,1,1)_{1273}$$

$$\ell_{14} = \left[\begin{array}{cccc} 1 & 1 & 0 & 1 \\ 0 & 0 & 1 & 1 \end{array}\right]_{722} = \left[\begin{array}{cccc} 1 & 1 & 0 & 1 \\ 0 & 0 & 1 & 1 \end{array}\right]_{722} = \mathbf{Pl}(0,1,1,1,1,1)_{1330}$$

Rank of lines: (0, 1, 64, 4680, 584, 4744, 648, 138, 666, 81, 82, 4689, 585, 665, 722)
Rank of points on Klein quadric: (0, 3, 2, 17, 18, 1, 10, 1322, 1323, 1217, 1224, 25, 32, 1273, 1330)

Eckardt Points

The surface has 15 Eckardt points:
$0 : P_0 = \mathbf{P}(1,0,0,0) = \mathbf{P}(1,0,0,0)$,
$1 : P_1 = \mathbf{P}(0,1,0,0) = \mathbf{P}(0,1,0,0)$,
$2 : P_2 = \mathbf{P}(0,0,1,0) = \mathbf{P}(0,0,1,0)$,
$3 : P_3 = \mathbf{P}(0,0,0,1) = \mathbf{P}(0,0,0,1)$,
$4 : P_4 = \mathbf{P}(1,1,1,1) = \mathbf{P}(1,1,1,1)$,
$5 : P_5 = \mathbf{P}(1,1,0,0) = \mathbf{P}(1,1,0,0)$,
$6 : P_{12} = \mathbf{P}(1,0,1,0) = \mathbf{P}(1,0,1,0)$,
$7 : P_{19} = \mathbf{P}(0,1,1,0) = \mathbf{P}(0,1,1,0)$,
$8 : P_{20} = \mathbf{P}(1,1,1,0) = \mathbf{P}(1,1,1,0)$,
$9 : P_{75} = \mathbf{P}(1,0,0,1) = \mathbf{P}(1,0,0,1)$,
$10 : P_{82} = \mathbf{P}(0,1,0,1) = \mathbf{P}(0,1,0,1)$,
$11 : P_{83} = \mathbf{P}(1,1,0,1) = \mathbf{P}(1,1,0,1)$,
$12 : P_{138} = \mathbf{P}(0,0,1,1) = \mathbf{P}(0,0,1,1)$,
$13 : P_{139} = \mathbf{P}(1,0,1,1) = \mathbf{P}(1,0,1,1)$,
$14 : P_{146} = \mathbf{P}(0,1,1,1) = \mathbf{P}(0,1,1,1)$.

Double Points

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

Single Points

The surface has 90 single points:
The single points on the surface are:

0 : $P_6 = (2,1,0,0)$ lies on line ℓ_0
1 : $P_7 = (3,1,0,0)$ lies on line ℓ_0
2 : $P_8 = (4,1,0,0)$ lies on line ℓ_0
3 : $P_9 = (5,1,0,0)$ lies on line ℓ_0
4 : $P_{10} = (6,1,0,0)$ lies on line ℓ_0
5 : $P_{11} = (7,1,0,0)$ lies on line ℓ_0
6 : $P_{13} = (2,0,1,0)$ lies on line ℓ_2
7 : $P_{14} = (3,0,1,0)$ lies on line ℓ_2
8 : $P_{15} = (4,0,1,0)$ lies on line ℓ_2
9 : $P_{16} = (5,0,1,0)$ lies on line ℓ_2
10 : $P_{17} = (6,0,1,0)$ lies on line ℓ_2
11 : $P_{18} = (7,0,1,0)$ lies on line ℓ_2
12 : $P_{21} = (2,1,1,0)$ lies on line ℓ_1
13 : $P_{22} = (3,1,1,0)$ lies on line ℓ_1
14 : $P_{23} = (4,1,1,0)$ lies on line ℓ_1
15 : $P_{24} = (5,1,1,0)$ lies on line ℓ_1
16 : $P_{25} = (6,1,1,0)$ lies on line ℓ_1
17 : $P_{26} = (7,1,1,0)$ lies on line ℓ_1
18 : $P_{90} = (0,2,0,1)$ lies on line ℓ_3
19 : $P_{91} = (1,2,0,1)$ lies on line ℓ_4
20 : $P_{98} = (0,3,0,1)$ lies on line ℓ_3
21 : $P_{99} = (1,3,0,1)$ lies on line ℓ_4
22 : $P_{106} = (0,4,0,1)$ lies on line ℓ_3
23 : $P_{107} = (1,4,0,1)$ lies on line ℓ_4
24 : $P_{114} = (0,5,0,1)$ lies on line ℓ_3
25 : $P_{115} = (1,5,0,1)$ lies on line ℓ_4
26 : $P_{122} = (0,6,0,1)$ lies on line ℓ_3
27 : $P_{123} = (1,6,0,1)$ lies on line ℓ_4
28 : $P_{130} = (0,7,0,1)$ lies on line ℓ_3
29 : $P_{131} = (1,7,0,1)$ lies on line ℓ_4
30 : $P_{155} = (2,2,1,1)$ lies on line ℓ_7
31 : $P_{156} = (3,2,1,1)$ lies on line ℓ_8
32 : $P_{163} = (2,3,1,1)$ lies on line ℓ_8
33 : $P_{164} = (3,3,1,1)$ lies on line ℓ_7
34 : $P_{173} = (4,4,1,1)$ lies on line ℓ_7
35 : $P_{174} = (5,4,1,1)$ lies on line ℓ_8
36 : $P_{181} = (4,5,1,1)$ lies on line ℓ_8
37 : $P_{182} = (5,5,1,1)$ lies on line ℓ_7
38 : $P_{191} = (6,6,1,1)$ lies on line ℓ_7
39 : $P_{192} = (7,6,1,1)$ lies on line ℓ_8
40 : $P_{199} = (6,7,1,1)$ lies on line ℓ_8
41 : $P_{200} = (7,7,1,1)$ lies on line ℓ_7
42 : $P_{201} = (0,0,2,1)$ lies on line ℓ_5
43 : $P_{202} = (1,0,2,1)$ lies on line ℓ_6
44 : $P_{211} = (2,1,2,1)$ lies on line ℓ_9
45 : $P_{212} = (3,1,2,1)$ lies on line ℓ_{10}
46 : $P_{217} = (0,2,2,1)$ lies on line ℓ_{11}
47 : $P_{218} = (1,2,2,1)$ lies on line ℓ_{12}
48 : $P_{227} = (2,3,2,1)$ lies on line ℓ_{13}
49 : $P_{228} = (3,3,2,1)$ lies on line ℓ_{14}
50 : $P_{265} = (0,0,3,1)$ lies on line ℓ_5
51 : $P_{266} = (1,0,3,1)$ lies on line ℓ_6
52 : $P_{275} = (2,1,3,1)$ lies on line ℓ_{10}
53 : $P_{276} = (3,1,3,1)$ lies on line ℓ_9
54 : $P_{283} = (2,2,3,1)$ lies on line ℓ_{14}
55 : $P_{284} = (3,2,3,1)$ lies on line ℓ_{13}
56 : $P_{289} = (0,3,3,1)$ lies on line ℓ_{11}
57 : $P_{290} = (1,3,3,1)$ lies on line ℓ_{12}
58 : $P_{329} = (0,0,4,1)$ lies on line ℓ_5
59 : $P_{330} = (1,0,4,1)$ lies on line ℓ_6
60 : $P_{341} = (4,1,4,1)$ lies on line ℓ_9
61 : $P_{342} = (5,1,4,1)$ lies on line ℓ_{10}
62 : $P_{361} = (0,4,4,1)$ lies on line ℓ_{11}
63 : $P_{362} = (1,4,4,1)$ lies on line ℓ_{12}
64 : $P_{373} = (4,5,4,1)$ lies on line ℓ_{13}
65 : $P_{374} = (5,5,4,1)$ lies on line ℓ_{14}
66 : $P_{393} = (0,0,5,1)$ lies on line ℓ_5
67 : $P_{394} = (1,0,5,1)$ lies on line ℓ_6
68 : $P_{405} = (4,1,5,1)$ lies on line ℓ_{10}
69 : $P_{406} = (5,1,5,1)$ lies on line ℓ_9
70 : $P_{429} = (4,4,5,1)$ lies on line ℓ_{14}
71 : $P_{430} = (5,4,5,1)$ lies on line ℓ_{13}
72 : $P_{433} = (0,5,5,1)$ lies on line ℓ_{11}
73 : $P_{434} = (1,5,5,1)$ lies on line ℓ_{12}
74 : $P_{457} = (0,0,6,1)$ lies on line ℓ_5
75 : $P_{458} = (1,0,6,1)$ lies on line ℓ_6
76 : $P_{471} = (6,1,6,1)$ lies on line ℓ_9
77 : $P_{472} = (7,1,6,1)$ lies on line ℓ_{10}
78 : $P_{505} = (0,6,6,1)$ lies on line ℓ_{11}
79 : $P_{506} = (1,6,6,1)$ lies on line ℓ_{12}
80 : $P_{519} = (6,7,6,1)$ lies on line ℓ_{13}
81 : $P_{520} = (7,7,6,1)$ lies on line ℓ_{14}

82 : $P_{521} = (0, 0, 7, 1)$ lies on line ℓ_5
83 : $P_{522} = (1, 0, 7, 1)$ lies on line ℓ_6
84 : $P_{535} = (6, 1, 7, 1)$ lies on line ℓ_{10}
85 : $P_{536} = (7, 1, 7, 1)$ lies on line ℓ_9
86 : $P_{575} = (6, 6, 7, 1)$ lies on line ℓ_{14}
87 : $P_{576} = (7, 6, 7, 1)$ lies on line ℓ_{13}
88 : $P_{577} = (0, 7, 7, 1)$ lies on line ℓ_{11}
89 : $P_{578} = (1, 7, 7, 1)$ lies on line ℓ_{12}

The single points on the surface are:

Points on surface but on no line

The surface has 0 points not on any line:
The points on the surface but not on lines are:

Line Intersection Graph

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
0	0	1	1	1	1	0	0	1	1	0	0	0	0	0	0
1	1	0	1	0	0	0	0	0	0	0	0	1	1	1	1
2	1	1	0	0	0	1	1	0	0	1	1	0	0	0	0
3	1	0	0	0	1	1	0	0	0	1	0	1	0	1	0
4	1	0	0	1	0	0	1	0	0	0	1	0	1	0	1
5	0	0	1	1	0	0	1	1	0	0	0	1	0	0	1
6	0	0	1	0	1	1	0	0	1	0	0	0	1	1	0
7	1	0	0	0	0	1	0	0	1	1	0	0	1	0	1
8	1	0	0	0	0	0	1	1	0	0	1	1	0	1	0
9	0	0	1	1	0	0	0	1	0	0	1	0	1	1	0
10	0	0	1	0	1	0	0	0	1	1	0	1	0	0	1
11	0	1	0	1	0	1	0	0	1	0	1	0	1	0	0
12	0	1	0	0	1	0	1	1	0	1	0	1	0	0	0
13	0	1	0	1	0	0	1	0	1	1	0	0	0	0	1
14	0	1	0	0	1	1	0	1	0	0	1	0	0	1	0

Neighbor sets in the line intersection graph:
Line 0 intersects

Line	ℓ_1	ℓ_2	ℓ_3	ℓ_4	ℓ_7	ℓ_8
in point	P_0	P_0	P_1	P_1	P_5	P_5

Line 1 intersects

Line	ℓ_0	ℓ_2	ℓ_{11}	ℓ_{12}	ℓ_{13}	ℓ_{14}
in point	P_0	P_0	P_{19}	P_{19}	P_{20}	P_{20}

Line 2 intersects

Line	ℓ_0	ℓ_1	ℓ_5	ℓ_6	ℓ_9	ℓ_{10}
in point	P_0	P_0	P_2	P_2	P_{12}	P_{12}

Line 3 intersects

Line	ℓ_0	ℓ_4	ℓ_5	ℓ_9	ℓ_{11}	ℓ_{13}
in point	P_1	P_1	P_3	P_{82}	P_3	P_{82}

Line 4 intersects

Line	ℓ_0	ℓ_3	ℓ_6	ℓ_{10}	ℓ_{12}	ℓ_{14}
in point	P_1	P_1	P_{75}	P_{83}	P_{75}	P_{83}

Line 5 intersects

Line	ℓ_2	ℓ_3	ℓ_6	ℓ_7	ℓ_{11}	ℓ_{14}
in point	P_2	P_3	P_2	P_{138}	P_3	P_{138}

Line 6 intersects

Line	ℓ_2	ℓ_4	ℓ_5	ℓ_8	ℓ_{12}	ℓ_{13}
in point	P_2	P_{75}	P_2	P_{139}	P_{75}	P_{139}

Line 7 intersects

Line	ℓ_0	ℓ_5	ℓ_8	ℓ_9	ℓ_{12}	ℓ_{14}
in point	P_5	P_{138}	P_5	P_4	P_4	P_{138}

Line 8 intersects

Line	ℓ_0	ℓ_6	ℓ_7	ℓ_{10}	ℓ_{11}	ℓ_{13}
in point	P_5	P_{139}	P_5	P_{146}	P_{146}	P_{139}

Line 9 intersects

Line	ℓ_2	ℓ_3	ℓ_7	ℓ_{10}	ℓ_{12}	ℓ_{13}
in point	P_{12}	P_{82}	P_4	P_{12}	P_4	P_{82}

Line 10 intersects

Line	ℓ_2	ℓ_4	ℓ_8	ℓ_9	ℓ_{11}	ℓ_{14}
in point	P_{12}	P_{83}	P_{146}	P_{12}	P_{146}	P_{83}

Line 11 intersects

Line	ℓ_1	ℓ_3	ℓ_5	ℓ_8	ℓ_{10}	ℓ_{12}
in point	P_{19}	P_3	P_3	P_{146}	P_{146}	P_{19}

Line 12 intersects

Line	ℓ_1	ℓ_4	ℓ_6	ℓ_7	ℓ_9	ℓ_{11}
in point	P_{19}	P_{75}	P_{75}	P_4	P_4	P_{19}

Line 13 intersects

Line	ℓ_1	ℓ_3	ℓ_6	ℓ_8	ℓ_9	ℓ_{14}
in point	P_{20}	P_{82}	P_{139}	P_{139}	P_{82}	P_{20}

Line 14 intersects

Line	ℓ_1	ℓ_4	ℓ_5	ℓ_7	ℓ_{10}	ℓ_{13}
in point	P_{20}	P_{83}	P_{138}	P_{138}	P_{83}	P_{20}

The surface has 105 points:
The points on the surface are:

$0: P_0 = (1,0,0,0)$
$1: P_1 = (0,1,0,0)$
$2: P_2 = (0,0,1,0)$
$3: P_3 = (0,0,0,1)$
$4: P_4 = (1,1,1,1)$
$5: P_5 = (1,1,0,0)$
$6: P_6 = (2,1,0,0)$
$7: P_7 = (3,1,0,0)$
$8: P_8 = (4,1,0,0)$
$9: P_9 = (5,1,0,0)$
$10: P_{10} = (6,1,0,0)$
$11: P_{11} = (7,1,0,0)$
$12: P_{12} = (1,0,1,0)$
$13: P_{13} = (2,0,1,0)$
$14: P_{14} = (3,0,1,0)$
$15: P_{15} = (4,0,1,0)$
$16: P_{16} = (5,0,1,0)$
$17: P_{17} = (6,0,1,0)$
$18: P_{18} = (7,0,1,0)$
$19: P_{19} = (0,1,1,0)$
$20: P_{20} = (1,1,1,0)$
$21: P_{21} = (2,1,1,0)$
$22: P_{22} = (3,1,1,0)$
$23: P_{23} = (4,1,1,0)$
$24: P_{24} = (5,1,1,0)$
$25: P_{25} = (6,1,1,0)$
$26: P_{26} = (7,1,1,0)$
$27: P_{75} = (1,0,0,1)$
$28: P_{82} = (0,1,0,1)$
$29: P_{83} = (1,1,0,1)$
$30: P_{90} = (0,2,0,1)$
$31: P_{91} = (1,2,0,1)$
$32: P_{98} = (0,3,0,1)$
$33: P_{99} = (1,3,0,1)$
$34: P_{106} = (0,4,0,1)$
$35: P_{107} = (1,4,0,1)$
$36: P_{114} = (0,5,0,1)$
$37: P_{115} = (1,5,0,1)$
$38: P_{122} = (0,6,0,1)$
$39: P_{123} = (1,6,0,1)$
$40: P_{130} = (0,7,0,1)$
$41: P_{131} = (1,7,0,1)$
$42: P_{138} = (0,0,1,1)$
$43: P_{139} = (1,0,1,1)$
$44: P_{146} = (0,1,1,1)$
$45: P_{155} = (2,2,1,1)$
$46: P_{156} = (3,2,1,1)$
$47: P_{163} = (2,3,1,1)$
$48: P_{164} = (3,3,1,1)$
$49: P_{173} = (4,4,1,1)$
$50: P_{174} = (5,4,1,1)$
$51: P_{181} = (4,5,1,1)$
$52: P_{182} = (5,5,1,1)$
$53: P_{191} = (6,6,1,1)$
$54: P_{192} = (7,6,1,1)$
$55: P_{199} = (6,7,1,1)$
$56: P_{200} = (7,7,1,1)$
$57: P_{201} = (0,0,2,1)$
$58: P_{202} = (1,0,2,1)$
$59: P_{211} = (2,1,2,1)$

60 : $P_{212} = (3, 1, 2, 1)$
61 : $P_{217} = (0, 2, 2, 1)$
62 : $P_{218} = (1, 2, 2, 1)$
63 : $P_{227} = (2, 3, 2, 1)$
64 : $P_{228} = (3, 3, 2, 1)$
65 : $P_{265} = (0, 0, 3, 1)$
66 : $P_{266} = (1, 0, 3, 1)$
67 : $P_{275} = (2, 1, 3, 1)$
68 : $P_{276} = (3, 1, 3, 1)$
69 : $P_{283} = (2, 2, 3, 1)$
70 : $P_{284} = (3, 2, 3, 1)$
71 : $P_{289} = (0, 3, 3, 1)$
72 : $P_{290} = (1, 3, 3, 1)$
73 : $P_{329} = (0, 0, 4, 1)$
74 : $P_{330} = (1, 0, 4, 1)$
75 : $P_{341} = (4, 1, 4, 1)$
76 : $P_{342} = (5, 1, 4, 1)$
77 : $P_{361} = (0, 4, 4, 1)$
78 : $P_{362} = (1, 4, 4, 1)$
79 : $P_{373} = (4, 5, 4, 1)$
80 : $P_{374} = (5, 5, 4, 1)$
81 : $P_{393} = (0, 0, 5, 1)$
82 : $P_{394} = (1, 0, 5, 1)$
83 : $P_{405} = (4, 1, 5, 1)$
84 : $P_{406} = (5, 1, 5, 1)$
85 : $P_{429} = (4, 4, 5, 1)$
86 : $P_{430} = (5, 4, 5, 1)$
87 : $P_{433} = (0, 5, 5, 1)$
88 : $P_{434} = (1, 5, 5, 1)$
89 : $P_{457} = (0, 0, 6, 1)$
90 : $P_{458} = (1, 0, 6, 1)$
91 : $P_{471} = (6, 1, 6, 1)$
92 : $P_{472} = (7, 1, 6, 1)$
93 : $P_{505} = (0, 6, 6, 1)$
94 : $P_{506} = (1, 6, 6, 1)$
95 : $P_{519} = (6, 7, 6, 1)$
96 : $P_{520} = (7, 7, 6, 1)$
97 : $P_{521} = (0, 0, 7, 1)$
98 : $P_{522} = (1, 0, 7, 1)$
99 : $P_{535} = (6, 1, 7, 1)$
100 : $P_{536} = (7, 1, 7, 1)$
101 : $P_{575} = (6, 6, 7, 1)$
102 : $P_{576} = (7, 6, 7, 1)$
103 : $P_{577} = (0, 7, 7, 1)$
104 : $P_{578} = (1, 7, 7, 1)$