The group multiplication table:

	E	C_{2x}	C_{2y}	C_{2z}	$C_{3(111)}$	$C_{3(1\overline{1}\overline{1})}$	$C_{3(\overline{1}1\overline{1})}$	$C_{3(\overline{1}\overline{1}1)}$	$C^2_{3(111)}$	$C^2_{3(1\overline{1}\overline{1})}$
E	E	C_{2x}	C_{2y}	C_{2z}	$C_{3(111)}$	$C_{3(1\overline{1}\overline{1})}$	$C_{3(\overline{1}1\overline{1})}$	$C_{3(\overline{1}\overline{1}1)}$	$C^2_{3(111)}$	$C^2_{3(1\overline{1}\overline{1})}$
C_{2x}	C_{2x}	E	C_{2z}	C_{2y}	$C_{3(\overline{1}\overline{1}1)}$	$C_{3(\overline{1}1\overline{1})}$	$C_{3(1\overline{1}\overline{1})}$	$C_{3(111)}$	$C^2_{3(\overline{1}1\overline{1})}$	$C^2_{3(\overline{1}\overline{1}1)}$
C_{2y}	C_{2y}	C_{2z}	E	C_{2x}	$C_{3(1\overline{1}\overline{1})}$	$C_{3(111)}$	$C_{3(\overline{1}\overline{1}1)}$	$C_{3(\overline{1}1\overline{1})}$	$C^2_{3(\overline{1}\overline{1}1)}$	$C^2_{3(\overline{1}1\overline{1})}$
C_{2z}	C_{2z}	C_{2y}	C_{2x}	E	$C_{3(\overline{1}1\overline{1})}$	$C_{3(\overline{1}\overline{1}1)}$	$C_{3(111)}$	$C_{3(1\overline{1}\overline{1})}$	$C^2_{3(1\overline{1}\overline{1})}$	$C^2_{3(111)}$
$C_{3(111)}$	$C_{3(111)}$	$C_{3(\overline{1}1\overline{1})}$	$C_{3(\overline{1}\overline{1}1)}$	$C_{3(1\overline{1}\overline{1})}$	$C^2_{3(111)}$	$C^2_{3(\overline{1}1\overline{1})}$	$C^2_{3(\overline{1}\overline{1}1)}$	$C^2_{3(1\overline{1}\overline{1})}$	E	C_{2y}
$C_{3(1\overline{1}\overline{1})}$	$C_{3(1\overline{1}\overline{1})}$	$C_{3(\overline{1}\overline{1}1)}$	$C_{3(\overline{1}1\overline{1})}$	$C_{3(111)}$	$C^2_{3(\overline{1}\overline{1}1)}$	$C^2_{3(1\overline{1}\overline{1})}$	$C^2_{3(111)}$	$C^2_{3(\overline{1}1\overline{1})}$	C_{2y}	E
$C_{3(\overline{1}1\overline{1})}$	$C_{3(\overline{1}1\overline{1})}$	$C_{3(111)}$	$C_{3(1\overline{1}\overline{1})}$	$C_{3(\overline{1}\overline{1}1)}$	$C^2_{3(1\overline{1}\overline{1})}$	$C^2_{3(\overline{1}\overline{1}1)}$	$C^2_{3(\overline{1}1\overline{1})}$	$C^2_{3(111)}$	C_{2z}	C_{2x}
$C_{3(\overline{1}\overline{1}1)}$	$C_{3(\overline{1}\overline{1}1)}$	$C_{3(1\overline{1}\overline{1})}$	$C_{3(111)}$	$C_{3(\overline{1}1\overline{1})}$	$C^2_{3(\overline{1}1\overline{1})}$	$C^2_{3(111)}$	$C^2_{3(1\overline{1}\overline{1})}$	$C^2_{3(\overline{1}\overline{1}1)}$	C_{2x}	C_{2z}
$C^2_{3(111)}$	$C^2_{3(111)}$	$C^2_{3(\overline{1}\overline{1}1)}$	$C^2_{3(1\overline{1}\overline{1})}$	$C^2_{3(\overline{1}1\overline{1})}$	E	C_{2z}	C_{2x}	C_{2y}	$C_{3(111)}$	$C_{3(\overline{1}\overline{1}1)}$
$C^2_{3(1\overline{1}\overline{1})}$	$C^2_{3(1\overline{1}\overline{1})}$	$C^2_{3(\overline{1}1\overline{1})}$	$C^2_{3(111)}$	$C^2_{3(\overline{1}\overline{1}1)}$	C_{2z}	E	C_{2y}	C_{2x}	$C_{3(\overline{1}1\overline{1})}$	$C_{3(1\overline{1}\overline{1})}$
$C^2_{3(\overline{1}1\overline{1})}$	$C^2_{3(\overline{1}1\overline{1})}$	$C^2_{3(1\overline{1}\overline{1})}$	$C^2_{3(\overline{1}\overline{1}1)}$	$C^2_{3(111)}$	C_{2x}	C_{2y}	E	C_{2z}	$C_{3(\overline{1}\overline{1}1)}$	$C_{3(111)}$
$C^2_{3(\overline{1}\overline{1}1)}$	$C^2_{3(\overline{1}\overline{1}1)}$	$C^2_{3(111)}$	$C^2_{3(\overline{1}1\overline{1})}$	$C^2_{3(1\overline{1}\overline{1})}$	C_{2y}	C_{2x}	C_{2z}	E	$C_{3(1\overline{1}\overline{1})}$	$C_{3(\overline{1}1\overline{1})}$
σ_{x+y}	σ_{x+y}	S_{4z}	S^3_{4z}	σ_{x-y}	S_{4y}	σ_{x+z}	σ_{x-z}	S^3_{4y}	S^3_{4x}	σ_{y-z}
σ_{x-y}	σ_{x-y}	S^3_{4z}	S_{4z}	σ_{x+y}	σ_{x-z}	S^3_{4y}	S_{4y}	σ_{x+z}	σ_{y-z}	S^3_{4x}
σ_{x+z}	σ_{x+z}	S^3_{4y}	σ_{x-z}	S_{4y}	S_{4x}	σ_{y-z}	S^3_{4x}	σ_{y+z}	S^3_{4z}	σ_{x+y}
σ_{x-z}	σ_{x-z}	S_{4y}	σ_{x+z}	S^3_{4y}	σ_{y-z}	S_{4x}	σ_{y+z}	S^3_{4x}	σ_{x-y}	S_{4z}
σ_{y+z}	σ_{y+z}	σ_{y-z}	S_{4x}	S^3_{4x}	S_{4z}	S^3_{4z}	σ_{x+y}	σ_{x-y}	S^3_{4y}	S_{4y}
σ_{y-z}	σ_{y-z}	σ_{y+z}	S^3_{4x}	S_{4x}	σ_{x-y}	σ_{x+y}	S^3_{4z}	S_{4z}	σ_{x-z}	σ_{x+z}
S_{4x}	S_{4x}	S^3_{4x}	σ_{y+z}	σ_{y-z}	S^3_{4z}	S_{4z}	σ_{x-y}	σ_{x+y}	σ_{x+z}	σ_{x-z}
S^3_{4x}	S^3_{4x}	S_{4x}	σ_{y-z}	σ_{y+z}	σ_{x+y}	σ_{x-y}	S_{4z}	S^3_{4z}	S_{4y}	S^3_{4y}
S_{4y}	S_{4y}	σ_{x-z}	S^3_{4y}	σ_{x+z}	S^3_{4x}	σ_{y+z}	S_{4x}	σ_{y-z}	σ_{x+y}	S^3_{4z}
S^3_{4y}	S^3_{4y}	σ_{x+z}	S_{4y}	σ_{x-z}	σ_{y+z}	S^3_{4x}	σ_{y-z}	S_{4x}	S_{4z}	σ_{x-y}
S_{4z}	S_{4z}	σ_{x+y}	σ_{x-y}	S^3_{4z}	S^3_{4y}	σ_{x-z}	σ_{x+z}	S_{4y}	σ_{y+z}	S_{4x}
S^3_{4z}	S^3_{4z}	σ_{x-y}	σ_{x+y}	S_{4z}	σ_{x+z}	S_{4y}	S^3_{4y}	σ_{x-z}	S_{4x}	σ_{y+z}

Classes of conjugated elements:

$\{\ E\}$,$\{\ C_{2x}\ C_{2z}\ C_{2y}\}$,$\{\ C_{3(111)}\ C_{3(1\overline{1}\overline{1})}\ C_{3(\overline{1}1\overline{1})}\ C_{3(\overline{1}\overline{1}1)}\ C^2_{3(\overline{1}\overline{1}1)}\ C^2_{3(111)}\ C^2_{3(\overline{1}1\overline{1})}$
$C^2_{3(1\overline{1}\overline{1})}\}$,$\{\ \sigma_{x+y}\ \sigma_{x-y}\ \sigma_{x+z}\ \sigma_{x-z}\ \sigma_{y+z}\ \sigma_{y-z}\}$,$\{\ S_{4x}\ S^3_{4x}\ S_{4z}\ S^3_{4z}\ S_{4y}\ S^3_{4y}\}$

Character table:

	E	$3C_2$	$8C_3$	$6\sigma_d$	$6S_4$
A_1	1	1	1	1	1
A_2	1	1	1	-1	-1
E	2	2	-1	0	0
T_1	3	-1	0	-1	1
T_2	3	-1	0	1	-1