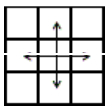
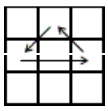
Permutation of Last Layer (PLL) Cheat Sheet



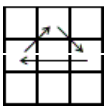
H Permutation

- M2 U M2 U2 M2 U M2
- M2 U' M2 U2' M2 U' M2
- R2' r2 U' L2 l2' U2 R2' r2 U' L2 l2'
- U' M2 U2 M2 U M2 U2 M2
- F2 M2 F2 U' F2 M2 F2 U
- x U2 M2 U2 B' U2 M2 U2 B
- R2 U2 R2 U2 R2 U R2 U2 R2 U2 R2 U'
- L R U2 L' R' F' B' U2 F B
- R U2 R' U' R' U' R2 U' R2 U2 R2 U2 R' U
- R2 U2 R U2 R2 U2 R2 U2 R2 U2 R U2 R2
- M2 U M2 U M2 U M2 U M2 U M2 U'



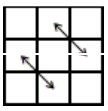
Ua Permutation

- (y2) F2 U' L R' F2 L' R U' F2
- M2 U M' U2 M U M2
- (y2) M2 U M U2 M' U M2
- R2 U' R' U' R U R U R U' R
- (y2) L2 U' L' U' L U L U L U' L
- B2 U' M' U2 M U' B2
- (y2) R U' R U R U R' U' R' U' R2
- M2 U M' U2 M U2 M' U2 M U M2
- (y) R2 U' y r U2 r' R U2 R' y' U' R2
- R U R' U' L' U' L U2 R U' R' U' L' U L



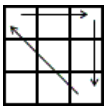
Ub Permutation

- (y2) F2 U R' L F2 R L' U F2
- M2 U' M' U2 M U' M2
- (y2) M2 U' M U2 M' U' M2
- R' U R' U' R' U' R' U R U R2
- (y2) R2' U R U R' U' R' U' R' U R'
- B2 U M' U2 M U B2
- L2 U L U L' U' L' U' L' U L'
- R U' R U R U R' U' R' U' R' U2 R'
- M2 U' M' U2 M U2 M' U2 M U' M2
- L' U' L U R U R' U2 L' U L U R U' R'



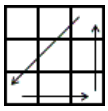
Z Permutation

- y x' R U' R' U D R' D U' R' U R D2' F x
- x L' U L U' D' L D' U L U' L' D2 F' x'
- M2 U M2 U M U2 M2 U2 M U2
- y M2 U M2 U M' U2 M2 U2 M' U2
- y M2' U' M' U2' M2' U2' M' U M2'
- y U R' U' R U' R U R U' R' U R U R2 U' R' U
- R' U' R2 U R U R' U' R U R U' R U' R' U2
- R B' R' B F R' F B' R' B R F2 U
- R2 U R2 U' R2 F2 R2 U' F2 U R2 F2
- y' M2 U2 M' U' M2 U' M2 U' M' U
- R' U L' U2 D2 R U' L R' U L' U2 D2 R U' L
- y R2 U' R2 U R2 x' U2 R2 F U2 F' R2 U2
- M' U M2 U M2 U M' U2 M2 U'
- U' l' U R U' D' R U D' R U' R' D2
- d R U R2 U' R' F R U R U' R U' R' U' R U R' F'
- F2 M2 F2 M2 U M2 U M2 U2
- U2' R U R U' R U2 R U' R' U' R U R' U' R' U R U' R U' R U R U' R' U' R' U' R U R'
- y R U R' U R' U' R' U R U' R' U' R2 U R U2
- y' R U R B' R' B U' R' f R U R' U' f'
- M2 U (F2 M2 F2 M2) U' M2
- y M2 U2 M' U M2 U M2 U M' U'
- R' U' R' F R F' U R F' U' L' U L F
- x' R U' R' U D R' D U' R' U R D2' F



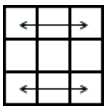
Aa Permutation

- R' F R' B2 R F' R' B2 R2
- (x') R' D R' U2 R D' R' U2 R2
- (x) R' U R' D2 R U' R' D2 R2
- (y' x) L2 D2 L' U' L D2 L' U L'
- (y2) (L' B L') (F2 L B' L') (F2 L2)
- (y2 z) F2 R U2 R' U2 F2 L' U2 L U2
- (y z') U2 R U2 R' F2 U2 L' U2 L F2
- R' U2 R2 U' L' U R' U' L U R' U2 R
- (y) R2 F2 (R' B' R) F2 (R' B R')



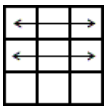
Ab Permutation

- R B' R F2 R' B R F2 R2
- (x) R D' R U2 R' D R U2 R2
- (x') R U' R D2 R' U R D2 R2
- (y' x) R2 D2 R U R' D2 R U' R
- (y2 x) L U' L D2 L' U L D2 L2
- (y z) U2 L' U2 L F2 U2 R U2 R' F2
- (z') F2 L' U2 L U2 F2 R U2 R' U2
- (y') R' U2 R U' L' U R U' L U R2 U2 R
- (z) (U R' D r2 U') (R U r2' U') (D')
- (z' y2) (U' r x) (l2' U L U') (R' U) (L' U' L') (R' U)



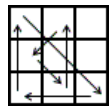
E Permutation

- R2 U R' U' y (R U R' U')*2 R U R' y' R U' R2'
- x U R' U' L U R U' L' U R U' L U R' U' L'
- y x' R U' R' D R U R' D2 L' U L D L' U' L
- y x' R U' R' D R U R' D' R U R' D R U' R' D'
- x U R' U' L U R U' r2' U' R U L U' R' U
- y x R U' R' D R U R' u2 R' U R D R' U' R
- y x (L' U L) D' (L' U' L) u2 (L U' L') D' (L U L')
- l' U' L' U R U' l U R' U' L U R U' l' U
- (r' R' U') (L D' L' U L) (R U' R' D R) U
- r2 U r2 D x' (R U' R' U)3 x D' r2 U' r2
- x' U' R U L' U' R' U r2 U R' U' r' F R F'
- y' z' R' F R2 U R' B' R U' R2 F' R z R B R'
- R' U L' D2 L U' R L' U R' D2 R U' L
- (R B L B' R') y (R L) y (L B' R' B L') y' (R' L')
- l' U' (r' F R F') (R U R' U') L (U R U' R') F



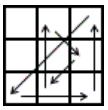
F Permutation

- (y2) R U' R' U R2 y R U R' U' x U' R' U R U2
- y z R U R' U' R U2 z' y' R U R' U' y x L' U' L U L2 x'
- R' U R U' R2 F' U' F U x R U R' U' R2 B'
- R' U R U' R2' F' U' F U R U' x' R2 U' R' U
- R' U R U' R2 y' R' U' R U y x R U R' U' R2 x'
- y R U R' U R U2 R2 U' R U' R' U2 R U r U R' U' L' U R U'
- R' U2 R' d' R' F' R2 U' R' U R' F R U' F
- (y) U' R' U R U' R'2 F' U' F U R x U R' U' R2
- (y2) M U2 r' U l' U2 r U' R2 r U2 R2
- (y) R' U' F' R U R' U' R' F R2 U' R' U' R U R' U R
- L U2 L U2 R' U L U L U' L' U2 R U2 L' U' L'
- (r U R' U') z U' (l' U2 r' U') (r U2 l' U l2)



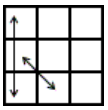
Ga Permutation

- (y) R2' u R' U R' U' R u' R2 y' R' U R
- (y) R2 D B' U B' U' B D' R2 F' U F
- (y2) F2' D R' U R' U' R D' F2 L' U L
- R L U2 R' L' y' R' U L' U2 R U' L



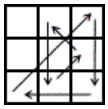
Gc Permutation

- (y) R2' u' R U' R U R' u R2 y R U' R'
- (y) R2' u' R U' R U R' u R2 B U' B'
- (y) R2' D' F U' F U F' D R2 B U' B'
- (y2) F2' D' L U' L U L' D F2 R U' R'
- L' R' U2 L R (y) L U' R U2 L' U R'
- (y') l' U' U' L' U l F' U' L U F R' F R



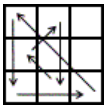
Ja Permutation

- (y2) R' U2 R U R' z' R2' U R' D R U'
- (y2) L U' R' U L' U2 R U' R' U2 R [7]
- (y2) L' R' U2 R U R' U2 L U' R U
- (y2) F2 L' U' r U2 l' U R' U' R2
- (y2) R' U2 R U R' U2' L U' R U L'
- (y2) x U2 r' U' r U2 l' U R' U' R2
- (y) R' U L' U2 R U' R' U2 L R U'
- U' L' U R' z R2 U R' U' R2 U D
- B2' R2 U' R2' u R2 D' R2' U R2
- R U' L' U R' U2 L U' L' U2' L
- R L d2 R' U' R d2 R' U L'
- (L' U R' U2 L U' R) U (L' U R' U2 L U' R)
- L' U R' U2 L U' R U L' U R' U2 L U' R
- L' U2 L U L' U2 R U' L U R'
- L' U' L F L' U' L U L F' L2 U L U



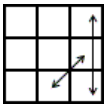
Gd Permutation

- (y2) R U R' y' R2 u' R U' R' U R' u R2
- (y2) R U R' F2 D' L U' L' U L' D F2
- (y2) l2 U' L2 U' F2 L' U' R U2 L' U l x
- (y) L U' R U2 L' U R' y R' L' U2 R L
- (y) L U' R U2 L' U R' y' L' R' U2 L R
- (y') R' F' R F' U' L' U F R' F' L F2 R
- U' x R' U R' D2 R U' R' D2 x' U R' U' R U R U R U' R



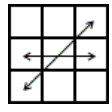
Gb Permutation

- R' U' R y R2 u R' U R U' R u' R2
- R' U' R B2 D L' U L U' L D' B2
- (y2) L' U' L y' R2' u R' U R U' R u' R2
- (y') R' U L' U2 R U' L y R L U2 L' R'



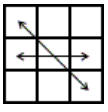
Jb Permutation

- R U2 R' U' R U2 L' U R' U' L
- R U2 R' U' R d2' R' U L' U' R
- y2 R L U2 L' U' L U2 R' U L' U'
- (R U R' F') (R U R' U' R') F (R2 U' R' U')
- y' L U' Rw U2 Lw' U R' U' Lw2 F2 L2
- y' L' U' R U2 L' U L U2 L' R U
- y2 F2' R U R' y r2 y' R U' R U R2'
- L' U R U' L U2 R' U R U2' R'
- y2 r2 U' L' U r' U2 R B' R' U2



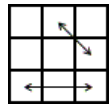
Na Permutation

- R' U R2 B2 U R' B2' R U' B2 R2' U' R
- z D R' U R2 D' R (U' D) R' U R2 D' R U' R
- y' L U' R U2 L' U R' L U' R U2 L' U R'
- R U' R' U l U F U' R' F' R U' R U l' U R'
- L U' L' U L F U F' L' U' L F' L F L' U L'
- R U' L d2 L' U L R' U' R U2 r' F l' U' y2
- L U' R U2 L' U R' L U' R U2 L' U R' U'
- y z R' U R' D R2' U' R U D' R' D R2' U' R D'
- R U' L d2 L' U L R' U' R U2 L' U R' U'
- F' R U R' U' R' F R2 F U' R' U' R U F' R'
- z U2 R2 U' R2 y' R2 U2 R2 U R2 y R2 U2 R2 d R2 x y



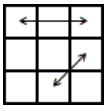
Nb Permutation

- R U' R2' F2 U' R F2' R' U F2 R2 U R'
- z U' R D' R2' U R' (U' D) R D' R2 U R' D
- z (D' R U' R2' D R3 U) 2
- L' U R' U2' L U' L' R U R' U2' L U' R U'
- R' U R U' R' F' U' F R U R' F R' F' R U' R
- z U' R D' R2 U R' U' z' R U R' z R2 U R' z' R U'
- L' U R' z R2 U R' U z' R U R' z R2 U R' z' R U'
- L' U L U' r' U' F' U L F L' U L' U' r U' L
- L U' R U2 L' U R' L U' R U2 L' U R' U'
- R' U R U' R' F' U' F R U R' U' R' d R U R'
- R' U L' U2 R U' L R' U L' U2 R U' L



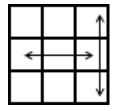
Ra Permutation

- y2 z U R2 U' R2 U F' U' R' U R U F U2 R
- y' R2 B' R' U' R' U R B R' U2 R U2 R'
- R U2 R' U2 R B' R' U' R U R B R2' U
- R U2 R' U2 R B' R' U' R U I U R2 F
- U2 R' U' R U2 R U2 L' R2 U R U' R L U2 R'
- y' R U R' F' R U2 R' U2 R' F R U R U2 R' U'
- R U2 R' U' R' F' R U2 R U2 R' F R U' R' U
- R U2 R D R' U R D' R' U' R' U R U R' U
- y2 L U2 L' U2 L F' L' U' L U L F L2 U
- R I U' l' U' R' U I U l' U2 R U2' R'



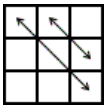
Rb Permutation

- R' U2 R U2 R' F R U R' U' R' F' R2' U'
- y R2 B2 U' R' U' R U R U B2 R U' R U
- R' U2 R U' y' R' F R B' R' F' R z x' R' U R'
- y2 R' U2 l R U' R' U l' U2' R F R U' R' U' R U R' F'
- R' U2 R' D' R U' R' D R U R U' R' U' R U'
- (y x) R2 U l U R U' l' U' l U2 R' U2 R
- r' L' U r U L U' r' U' r U2 L' U2 L



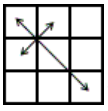
T Permutation

- R U R' U' R' F R2 U' R' U' R U R' F'
- y2 L' U' L U L F' L2 U L U L' U' L F
- F R U' R' U R U R2 F' R U R U' R'
- L2 U' L2 D F2 R2 U R2 D' F2
- R2 U' R2 D B2 L2 U L2 D' B2
- R2' u' R2 U R2' y R2 u R2' U' R2
- R2 U R2' U' R2 U' D R2' U' R2 U R2' D'
- (z x2) U2 r' U2 r U2 x U2 r U2 r' U2



V Permutation

- R' U R' U' y x R' U' R2 x' U' R' U R' F R F
- R' U R' U' B' D B' D' B2 R' B' R B R
- R' U R' U' x2 y' R' U R' U' l R U' R' U R U
- y L' U R U' L U L' U R' U' L U2 R U2 R'
- y2 R U' L' U R' U' R U' L U R' U2 L' U2 L
- y' R' U L U' R U R' U L' U' R U2 L U2 L'
- L U' R' U L' U' L U' R U L' U2 R' U2 R
- R' U R' d' R' F' R2 U' R' U R' F R F
- R' U R' U' y z' U' R U' R' U2 y' R' U' R U R
- R' U R' U' y R' F' R2 U' R' U R' F R F
- R' U R' U' y R' D R' D' R2 F' R' F R F
- R' U2 R U2 L U' R' U L' U L U' R U L'
- R' U2 R U2 L U' R' U r' F r U' R U r'
- R2 U' (B2 U B2) (R D') (R D) R' U R U' R



Y Permutation

- F R U' R' U' R U R' F' R U R' U' R' F R F'
- R2 u R2' U R2 D' R' U' R F2' R' U R
- F R' F R2 U' R' U' R U R' F' R U R' U' F'
- R' U' R F2 R' U R d R2 U' R2' U' R2
- R2 U' R' U R U' z' y' L' U' R U' R' U' L U y z
- y F' L' U L U L' U' L F L' U' L U L' F' L F
- F R U' R' F D R' y x R' U' R z R2 y L' d2
- z' U2 L' U' L U L' y' L' U' R U' R' U' L U
- F R' F' R U R U' R2 U' R U I U' R' U
- z U2 R U R' U' R y R U L' U L U R' U'
- F R U' R' U' R d R U R' B' R U' R2
- R' F R F' y' U' R' U R2 U R' U' R' F R F' U'
- y2 z U2 R' U2 R' U2 R B R B ' U2 B R' B'