

Double Midge Flip

The double midge flip is an important maneuver for designing pretty patterns on cubes of order greater than 3.

AlgorithmFinder4 – User Input Form – Double Midge Flip – 4x4x4 Cube

[illegible]

AlgorithmFinder4 – Cube Layout – Double Midge Flip – 4x4x4 Cube

AlgorithmFinder4 - Microsoft Excel

Note that all centers of faces F and R have been set to -1 so that they can freely rotate.

Double Midge Flip and Escher Cube (Lizards)

Escher Cube

Original design 2009 by
Walter Randelshofer

Based on the artwork
«Symmetry No. 104»,
© 1959, by M.C. Escher

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Midges	Centers	Algorithms
(FR)	R: 180°	MU2 B2 R2 MD R2 MD' F2 MU F2 R2 MU R2 MU' B2 MU2
(RB)	R: 180°	MU2 F2 R2 MD R2 MD' F2 MU F2 R2 MU R2 MU' F2 MU2
(FU)	U: 180°	MR2 B2 U2 ML U2 ML' B2 MR B2 U2 MR U2 MR' B2 MR2
(UB)	U: 180°	MR2 F2 U2 ML U2 ML' B2 MR B2 U2 MR U2 MR' F2 MR2
(FL)	L: 180°	MU2 B2 L2 MD L2 MD' B2 MU B2 L2 MU L2 MU' B2 MU2
(LB)	L: 180°	MU2 F2 L2 MD L2 MD' B2 MU B2 L2 MU L2 MU' F2 MU2
(FD)	D: 180°	MR2 B2 D2 ML D2 ML' F2 MR F2 D2 MR D2 MR' B2 MR2
(DB)	D: 180°	MR2 F2 D2 ML D2 ML' F2 MR F2 D2 MR D2 MR' F2 MR2

Note: By using algorithms that rotate centers 2 times, only 1 head and 1 leg per lizard change color

Double Midge Flip – Algorithms

If A is an algorithm of order 2, then $(A)^2 = A.A = I$ (Identity) or equivalently: $A = A'$, where A' is the inverted algorithm of A. This means that if A is a maneuver of order 2 applied to a cube, then A' is also a maneuver of order 2 and. The cube state will be exactly the same at the end of any of the 2 maneuvers A and A'.

Templates have been created to find algorithms that will flip any double midges on a 4x4x4 cube. All algorithms are 15 moves long. These are based on concatenations of monoswaps of edges (like X2) and slice moves (like MX and MX2). There are 12 cases in all.

Some algorithms will rotate centers on a selected face whereas others will rotate centers on one of the adjacent faces. *This means that a face with non-rotated centers can be selected if there is already a pattern displayed on it that should not be rotated.*

In the Table below, a template like MX2 is any move in set {MF2, MR2, MU2, ML2, MD2, MB2}, X2 is any move in set {F2, R2, U2, L2, D2, B2}, MX is any move in set {MF, MF', MR, MR', MU, MU', ML, ML', MD, MD', MB, MB'} and MX' is any move in set {MF', MF, MR', MR, MU', MU, ML', ML, MD', MD, MB', MB}.

Double Midge Flip Templates – Algorithm 1	
Algorithm Model	
MU2 B2 R2 MD R2 MD' F2 MU F2 R2 MU R2 MU' B2 MU2	
Algorithm Template	
MX2 Y2 Z2 MP Z2 MP' Q2 MX Q2 Z2 MX Z2 MX' Y2 MX2	
Inverted Algorithm Model	
MU2 B2 MU R2 MU' R2 F2 MU' F2 MD R2 MD' R2 B2 MU2	
Inverted Algorithm Template	
MX2 Y2 MX Z2 MX' Z2 P2 MX' P2 MQ Z2 MQ' Z2 Y2 MX2	
Double Midge Flip Templates – Algorithm 2	
Algorithm Model	
MD2 B2 R2 MU R2 MD' R2 MD R2 F2 MD F2 MU' B2 MD2	
Algorithm Template	
MX2 Y2 Z2 MP Z2 MX' Z2 MX Z2 Q2 MX Q2 MP' Y2 MX2	
Inverted Algorithm Model	
MD2 B2 MU F2 MD' F2 R2 MD' R2 MD R2 MU' R2 B2 MD2	
Inverted Algorithm Template	
MX2 Y2 MZ P2 MX' P2 Q2 MX' Q2 MX Q2 MZ' Q2 Y2 MX2	
Double Midge Flip Templates – Algorithm 3	
Algorithm Model	
MU R2 MU' R2 MD R2 MD2 F2 MU' F2 MD R2 F2 MU2 F2	
Algorithm Template	
MX Y2 MX' Y2 MZ Y2 MZ2 P2 MX' P2 MZ Y2 P2 MX2 P2	
Inverted Algorithm Model	
F2 MU2 F2 R2 MD' F2 MU F2 MD2 R2 MD' R2 MU R2 MU'	
Inverted Algorithm Template	
X2 MY2 X2 Z2 MP' X2 MY X2 MP2 Z2 MP' Z2 MY Z2 MY'	
Double Midge Flip Templates – Algorithm 4	
Algorithm Model	
MU R2 MD' F2 MD F2 MU2 R2 MU' R2 MU R2 F2 MU2 F2	
Algorithm Template	
MX Y2 MZ' P2 MZ P2 MX2 Y2 MX' Y2 MX Y2 P2 MX2 P2	
Inverted Algorithm Model	
F2 MU2 F2 R2 MU' R2 MU R2 MU2 F2 MD' F2 MD R2 MU'	
Inverted Algorithm Template	
X2 MY2 X2 Z2 MY' Z2 MY Z2 MY2 X2 MP' X2 MP Z2 MY'	
http://www.randelshofer.ch/rubik/patterns_revenge.html	

Double Midge Flip Algorithms – FR Dedges – 1/12

Algorithms	Centers F	Centers R	Index
MU2 L2 F2 MD F2 MD' L2 MU L2 F2 MU F2 MU' L2 MU2	180°	0°	1
MU2 B2 R2 MD R2 MD' F2 MU F2 R2 MU R2 MU' B2 MU2	0°	180°	2
MU2 L2 F2 MD' F2 MD R2 MU' R2 F2 MU' F2 MU L2 MU2	180°	0°	3
MU2 B2 R2 MD' R2 MD B2 MU' B2 R2 MU' R2 MU B2 MU2	0°	180°	4
MD2 L2 F2 MU F2 MU' R2 MD R2 F2 MD F2 MD' L2 MD2	180°	0°	5
MD2 B2 R2 MU R2 MU' B2 MD B2 R2 MD R2 MD' B2 MD2	0°	180°	6
MD2 L2 F2 MU' F2 MU L2 MD' L2 F2 MD' F2 MD L2 MD2	180°	0°	7
MD2 B2 R2 MU' R2 MU F2 MD' F2 R2 MD' R2 MD B2 MD2	0°	180°	8
MU2 L2 MU F2 MU' F2 L2 MU' L2 MD F2 MD' F2 L2 MU2	180°	0°	9
MU2 B2 MU R2 MU' R2 F2 MU' F2 MD R2 MD' R2 B2 MU2	0°	180°	10
MU2 L2 MU' F2 MU F2 R2 MU R2 MD' F2 MD F2 L2 MU2	180°	0°	11
MU2 B2 MU' R2 MU R2 B2 MU B2 MD' R2 MD R2 B2 MU2	0°	180°	12
MD2 L2 MD F2 MD' F2 R2 MD' R2 MU F2 MU' F2 L2 MD2	180°	0°	13
MD2 B2 MD R2 MD' R2 B2 MD' B2 MU R2 MU' R2 B2 MD2	0°	180°	14
MD2 L2 MD' F2 MD F2 L2 MD L2 MU' F2 MU F2 L2 MD2	180°	0°	15
MD2 B2 MD' R2 MD R2 F2 MD F2 MU' R2 MU R2 B2 MD2	0°	180°	16
MU2 L2 F2 MD F2 MU' F2 MU F2 R2 MU R2 MD' L2 MU2	180°	0°	17
MU2 B2 R2 MD R2 MU' R2 MU R2 B2 MU B2 MD' B2 MU2	0°	180°	18
MU2 L2 F2 MD' F2 MU F2 MU' F2 L2 MU' L2 MD L2 MU2	180°	0°	19
MU2 B2 R2 MD' R2 MU R2 MU' R2 F2 MU' F2 MD B2 MU2	0°	180°	20
MD2 L2 F2 MU F2 MD' F2 MD F2 L2 MD L2 MU' L2 MD2	180°	0°	21
MD2 B2 R2 MU R2 MD' R2 MD R2 F2 MD F2 MU' B2 MD2	0°	180°	22
MD2 L2 F2 MU' F2 MD F2 MD' F2 R2 MD' R2 MU L2 MD2	180°	0°	23
MD2 B2 R2 MU' R2 MD R2 MD' R2 B2 MD' B2 MU B2 MD2	0°	180°	24
MU2 L2 MD R2 MU' R2 F2 MU' F2 MU F2 MD' F2 L2 MU2	180°	0°	25
MU2 B2 MD B2 MU' B2 R2 MU' R2 MU R2 MD' R2 B2 MU2	0°	180°	26
MU2 L2 MD' L2 MU L2 F2 MU F2 MU' F2 MD F2 L2 MU2	180°	0°	27
MU2 B2 MD' F2 MU F2 R2 MU R2 MU' R2 MD R2 B2 MU2	0°	180°	28
MD2 L2 MU L2 MD' L2 F2 MD' F2 MD F2 MU' F2 L2 MD2	180°	0°	29
MD2 B2 MU F2 MD' F2 R2 MD' R2 MD R2 MU' R2 B2 MD2	0°	180°	30
MD2 L2 MU' R2 MD R2 F2 MD F2 MD' F2 MU F2 L2 MD2	180°	0°	31
MD2 B2 MU' B2 MD B2 R2 MD R2 MD' R2 MU R2 B2 MD2	0°	180°	32
MU R2 MU' R2 MD R2 MD2 F2 MU' F2 MD R2 F2 MU2 F2	0°	180°	33
MU' F2 MU F2 MD' F2 MD2 R2 MU R2 MD' F2 R2 MU2 R2	180°	0°	34
MD F2 MD' F2 MU F2 MU2 R2 MD' R2 MU F2 R2 MD2 R2	180°	0°	35
MD' R2 MD R2 MU' R2 MU2 F2 MD F2 MU' R2 F2 MD2 F2	0°	180°	36
F2 MU2 F2 R2 MD' F2 MU F2 MD2 R2 MD' R2 MU R2 MU'	0°	180°	37
F2 MD2 F2 R2 MU F2 MD' F2 MU2 R2 MU R2 MD' R2 MD	0°	180°	38
R2 MU2 R2 F2 MD R2 MU' R2 MD2 F2 MD F2 MU' F2 MU	180°	0°	39
R2 MD2 R2 F2 MU' R2 MD R2 MU2 F2 MU' F2 MD F2 MD'	180°	0°	40
MU R2 MD' F2 MD F2 MU2 R2 MU' R2 MU R2 F2 MU2 F2	0°	180°	41
MU' F2 MD R2 MD' R2 MU2 F2 MU F2 MU' F2 R2 MU2 R2	180°	0°	42
MD F2 MU' R2 MU R2 MD2 F2 MD' F2 MD F2 R2 MD2 R2	180°	0°	43
MD' R2 MU F2 MU' F2 MD2 R2 MD R2 MD' R2 F2 MD2 F2	0°	180°	44
F2 MU2 F2 R2 MU' R2 MU R2 MU2 F2 MD' F2 MD R2 MU'	0°	180°	45
F2 MD2 F2 R2 MD R2 MD' R2 MD2 F2 MU F2 MU' R2 MD	0°	180°	46
R2 MU2 R2 F2 MU F2 MU' F2 MU2 R2 MD R2 MD' F2 MU	180°	0°	47
R2 MD2 R2 F2 MD' F2 MD F2 MD2 R2 MU' R2 MU F2 MD'	180°	0°	48

Cube Layout – Double Midge Flip – FR Midges – 1/12

AlgorithmFinder4 - Microsoft Excel

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
1					32	33	34	35										32	33	34	35				
2					36	37	38	39										36	37	38	39				
3					40	41	42	43										40	41	42	43				
4					44	45	46	47										44	45	46	47				
5	48	49	50	51	0	1	2	3	16	17	18	19		48	49	50	51	0	1	2	3	16	17	18	19
6	52	53	54	55	4	10	9	24	11	21	22	23		52	53	54	55	4	-1	-1	24	-1	-1	-1	23
7	56	57	58	59	8	6	5	20	7	25	26	27		56	57	58	59	8	-1	-1	20	-1	-1	-1	27
8	60	61	62	63	12	13	14	15	28	29	30	31		60	61	62	63	12	13	14	15	28	29	30	31
9					64	65	66	67	80	81	82	83						64	65	66	67	80	81	82	83
10					68	69	70	71	84	85	86	87						68	69	70	71	84	85	86	87
11					72	73	74	75	88	89	90	91						72	73	74	75	88	89	90	91
12					76	77	78	79	92	93	94	95						76	77	78	79	92	93	94	95

Algorithms: CubeLayout / 3DCube / Arrays / DataBase Algorithms / DataBase_CubeStates

Prêt

DoubleMidgeFlip - ... Microsoft Excel - Alg...

FR 15:10

Note that all centers of faces F and R have been set to -1 so that they can freely rotate.

Double Midge Flip Algorithms – FU Midges – 2/12

Algorithms	Centers F	Centers U	Index
MR2 D2 F2 ML F2 ML' U2 MR U2 F2 MR F2 MR' D2 MR2			1
MR2 B2 U2 ML U2 ML' B2 MR B2 U2 MR U2 MR' B2 MR2			2
MR2 D2 F2 ML' F2 ML D2 MR' D2 F2 MR' F2 MR D2 MR2			3
MR2 B2 U2 ML' U2 ML F2 MR' F2 U2 MR' U2 MR B2 MR2			4
ML2 D2 F2 MR F2 MR' D2 ML D2 F2 ML F2 ML' D2 ML2			5
ML2 B2 U2 MR U2 MR' F2 ML F2 U2 ML U2 ML' B2 ML2			6
ML2 D2 F2 MR' F2 MR U2 ML' U2 F2 ML' F2 ML D2 ML2			7
ML2 B2 U2 MR' U2 MR B2 ML' B2 U2 ML' U2 ML B2 ML2			8
MR2 D2 MR F2 MR' F2 U2 MR' U2 ML F2 ML' F2 D2 MR2			9
MR2 B2 MR U2 MR' U2 B2 MR' B2 ML U2 ML' U2 B2 MR2			10
MR2 D2 MR' F2 MR F2 D2 MR D2 ML' F2 ML F2 D2 MR2			11
MR2 B2 MR' U2 MR U2 F2 MR F2 ML' U2 ML U2 B2 MR2			12
ML2 D2 ML F2 ML' F2 D2 ML' D2 MR F2 MR' F2 D2 ML2			13
ML2 B2 ML U2 ML' U2 F2 ML' F2 MR U2 MR' U2 B2 ML2			14
ML2 D2 ML' F2 ML F2 U2 ML U2 MR' F2 MR F2 D2 ML2			15
ML2 B2 ML' U2 ML U2 B2 ML B2 MR' U2 MR U2 B2 ML2			16
MR2 D2 F2 ML F2 MR' F2 MR F2 D2 MR D2 ML' D2 MR2			17
MR2 B2 U2 ML U2 MR' U2 MR U2 F2 MR F2 ML' B2 MR2			18
MR2 D2 F2 ML' F2 MR F2 MR' F2 U2 MR' U2 ML D2 MR2			19
MR2 B2 U2 ML' U2 MR U2 MR' U2 B2 MR' B2 ML B2 MR2			20
ML2 D2 F2 MR F2 ML' F2 ML F2 U2 ML U2 MR' D2 ML2			21
ML2 B2 U2 MR U2 ML' U2 ML U2 B2 ML B2 MR' B2 ML2			22
ML2 D2 F2 MR' F2 ML F2 ML' F2 D2 ML' D2 MR D2 ML2			23
ML2 B2 U2 MR' U2 ML U2 ML' U2 F2 ML' F2 MR B2 ML2			24
MR2 D2 ML D2 MR' D2 F2 MR' F2 MR F2 ML' F2 D2 MR2			25
MR2 B2 ML F2 MR' F2 U2 MR' U2 MR U2 ML' U2 B2 MR2			26
MR2 D2 ML' U2 MR U2 F2 MR F2 MR' F2 ML F2 D2 MR2			27
MR2 B2 ML' B2 MR B2 U2 MR U2 MR' U2 ML U2 B2 MR2			28
ML2 D2 MR U2 ML' U2 F2 ML' F2 ML F2 MR' F2 D2 ML2			29
ML2 B2 MR B2 ML' B2 U2 ML' U2 ML U2 MR' U2 B2 ML2			30
ML2 D2 MR' D2 ML D2 F2 ML F2 ML' F2 MR F2 D2 ML2			31
ML2 B2 MR' F2 ML F2 U2 ML U2 ML' U2 MR U2 B2 ML2			32
MR F2 MR' F2 ML F2 ML2 U2 MR' U2 ML F2 U2 MR2 U2			33
MR' U2 MR U2 ML' U2 ML2 F2 MR F2 ML' U2 F2 MR2 F2			34
ML U2 ML' U2 MR U2 MR2 F2 ML' F2 MR U2 F2 ML2 F2			35
ML' F2 ML F2 MR' F2 MR2 U2 ML U2 MR' F2 U2 ML2 U2			36
F2 MR2 F2 U2 ML F2 MR' F2 ML2 U2 ML U2 MR' U2 MR			37
F2 ML2 F2 U2 MR' F2 ML F2 MR2 U2 MR' U2 ML U2 ML'			38
U2 MR2 U2 F2 ML' U2 MR U2 ML2 F2 ML' F2 MR F2 MR'			39
U2 ML2 U2 F2 MR U2 ML' U2 MR2 F2 MR F2 ML' F2 ML			40
MR F2 ML' U2 ML U2 MR2 F2 MR' F2 MR F2 U2 MR2 U2			41
MR' U2 ML F2 ML' F2 MR2 U2 MR U2 MR' U2 F2 MR2 F2			42
ML U2 MR' F2 MR F2 ML2 U2 ML' U2 ML U2 F2 ML2 F2			43
ML' F2 MR U2 MR' U2 ML2 F2 ML F2 ML' F2 U2 ML2 U2			44
F2 MR2 F2 U2 MR U2 MR' U2 MR2 F2 ML F2 ML' U2 MR			45
F2 ML2 F2 U2 ML' U2 ML U2 ML2 F2 MR' F2 MR U2 ML'			46
U2 MR2 U2 F2 MR' F2 MR F2 MR2 U2 ML' U2 ML F2 MR'			47
U2 ML2 U2 F2 ML F2 ML' F2 ML2 U2 MR U2 MR' F2 ML			48

Cube Layout – Double Midge Flip – FU Midges – 2/12

AlgorithmFinder4 - Microsoft Excel

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
1					32	33	34	35										32	33	34	35				
2					36	37	38	39										36	-1	-1	39				
3					40	41	42	43										40	-1	-1	43				
4					44	2	1	47										44	-1	-1	47				
5	48	49	50	51	0	46	45	3	16	17	18	19		48	49	50	51	0	46	45	3	16	17	18	19
6	52	53	54	55	4	10	9	7	20	21	22	23		52	53	54	55	4	-1	-1	7	20	21	22	23
7	56	57	58	59	8	6	5	11	24	25	26	27		56	57	58	59	8	-1	-1	11	24	25	26	27
8	60	61	62	63	12	13	14	15	28	29	30	31		60	61	62	63	12	13	14	15	28	29	30	31
9					64	65	66	67	80	81	82	83						64	65	66	67	80	81	82	83
10					68	69	70	71	84	85	86	87						68	69	70	71	84	85	86	87
11					72	73	74	75	88	89	90	91						72	73	74	75	88	89	90	91
12					76	77	78	79	92	93	94	95						76	77	78	79	92	93	94	95

Algorithms: CubeLayout / 3DCube / Arrays / DataBase Algorithms / DataBase_CubeStates

Note that all centers of faces F and U have been set to -1 so that they can freely rotate.

Double Midge Flip Algorithms – FL Midges – 3/12

Algorithms	Centers F	Centers L	Index
MU2 R2 F2 MD F2 MD' L2 MU L2 F2 MU F2 MU' R2 MU2			1
MU2 B2 L2 MD L2 MD' B2 MU B2 L2 MU L2 MU' B2 MU2			2
MU2 R2 F2 MD' F2 MD R2 MU' R2 F2 MU' F2 MU R2 MU2			3
MU2 B2 L2 MD' L2 MD F2 MU' F2 L2 MU' L2 MU B2 MU2			4
MD2 R2 F2 MU F2 MU' R2 MD R2 F2 MD F2 MD' R2 MD2			5
MD2 B2 L2 MU L2 MU' F2 MD F2 L2 MD L2 MD' B2 MD2			6
MD2 R2 F2 MU' F2 MU L2 MD' L2 F2 MD' F2 MD R2 MD2			7
MD2 B2 L2 MU' L2 MU B2 MD' B2 L2 MD' L2 MD B2 MD2			8
MU2 R2 MU F2 MU' F2 L2 MU' L2 MD F2 MD' F2 R2 MU2			9
MU2 B2 MU L2 MU' L2 B2 MU' B2 MD L2 MD' L2 B2 MU2			10
MU2 R2 MU' F2 MU F2 R2 MU R2 MD' F2 MD F2 R2 MU2			11
MU2 B2 MU' L2 MU L2 F2 MU F2 MD' L2 MD L2 B2 MU2			12
MD2 R2 MD F2 MD' F2 R2 MD' R2 MU F2 MU' F2 R2 MD2			13
MD2 B2 MD L2 MD' L2 F2 MD' F2 MU L2 MU' L2 B2 MD2			14
MD2 R2 MD' F2 MD F2 L2 MD L2 MU' F2 MU F2 R2 MD2			15
MD2 B2 MD' L2 MD L2 B2 MD B2 MU' L2 MU L2 B2 MD2			16
MU2 R2 F2 MD F2 MU' F2 MU F2 R2 MU R2 MD' R2 MU2			17
MU2 B2 L2 MD L2 MU' L2 MU L2 F2 MU F2 MD' B2 MU2			18
MU2 R2 F2 MD' F2 MU F2 MU' F2 L2 MU' L2 MD R2 MU2			19
MU2 B2 L2 MD' L2 MU L2 MU' L2 B2 MU' B2 MD B2 MU2			20
MD2 R2 F2 MU F2 MD' F2 MD F2 L2 MD L2 MU' R2 MD2			21
MD2 B2 L2 MU L2 MD' L2 MD L2 B2 MD B2 MU' B2 MD2			22
MD2 R2 F2 MU' F2 MD F2 MD' F2 R2 MD' R2 MU R2 MD2			23
MD2 B2 L2 MU' L2 MD L2 MD' L2 F2 MD' F2 MU B2 MD2			24
MU2 R2 MD R2 MU' R2 F2 MU' F2 MU F2 MD' F2 R2 MU2			25
MU2 B2 MD F2 MU' F2 L2 MU' L2 MU L2 MD' L2 B2 MU2			26
MU2 R2 MD' L2 MU L2 F2 MU F2 MU' F2 MD F2 R2 MU2			27
MU2 B2 MD' B2 MU B2 L2 MU L2 MU' L2 MD L2 B2 MU2			28
MD2 R2 MU L2 MD' L2 F2 MD' F2 MD F2 MU' F2 R2 MD2			29
MD2 B2 MU B2 MD' B2 L2 MD' L2 MD L2 MU' L2 B2 MD2			30
MD2 R2 MU' R2 MD R2 F2 MD F2 MD' F2 MU F2 R2 MD2			31
MD2 B2 MU' F2 MD F2 L2 MD L2 MD' L2 MU L2 B2 MD2			32
MU F2 MU' F2 MD F2 MD2 L2 MU' L2 MD F2 L2 MU2 L2			33
MU' L2 MU L2 MD' L2 MD2 F2 MU F2 MD' L2 F2 MU2 F2			34
MD L2 MD' L2 MU L2 MU2 F2 MD' F2 MU L2 F2 MD2 F2			35
MD' F2 MD F2 MU' F2 MU2 L2 MD L2 MU' F2 L2 MD2 L2			36
F2 MU2 F2 L2 MD F2 MU' F2 MD2 L2 MD L2 MU' L2 MU			37
F2 MD2 F2 L2 MU' F2 MD F2 MU2 L2 MU' L2 MD L2 MD'			38
L2 MU2 L2 F2 MD' L2 MU L2 MD2 F2 MD' F2 MU F2 MU'			39
L2 MD2 L2 F2 MU L2 MD' L2 MU2 F2 MU F2 MD' F2 MD			40
MU F2 MD' L2 MD L2 MU2 F2 MU' F2 MU F2 L2 MU2 L2			41
MU' L2 MD F2 MD' F2 MU2 L2 MU L2 MU' L2 F2 MU2 F2			42
MD L2 MU' F2 MU F2 MD2 L2 MD' L2 MD L2 F2 MD2 F2			43
MD' F2 MU L2 MU' L2 MD2 F2 MD F2 MD' F2 L2 MD2 L2			44
F2 MU2 F2 L2 MU L2 MU' L2 MU2 F2 MD F2 MD' L2 MU			45
F2 MD2 F2 L2 MD' L2 MD L2 MD2 F2 MU' F2 MU L2 MD'			46
L2 MU2 L2 F2 MU' F2 MU F2 MU2 L2 MD' L2 MD F2 MU'			47
L2 MD2 L2 F2 MD F2 MD' F2 MD2 L2 MU L2 MU' F2 MD			48

Cube Layout – Double Midge Flip – FL Midges – 3/12

AlgorithmFinder4 - Microsoft Excel

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
1					32	33	34	35										32	33	34	35				
2					36	37	38	39										36	37	38	39				
3					40	41	42	43										40	41	42	43				
4					44	45	46	47										44	45	46	47				
5	48	49	50	51	0	1	2	3	16	17	18	19		48	49	50	51	0	1	2	3	16	17	18	19
6	52	53	54	8	59	10	9	7	20	21	22	23		52	-1	-1	-1	59	-1	-1	7	20	21	22	23
7	56	57	58	4	55	6	5	11	24	25	26	27		56	-1	-1	-1	55	-1	-1	11	24	25	26	27
8	60	61	62	63	12	13	14	15	28	29	30	31		60	61	62	63	12	13	14	15	28	29	30	31
9					64	65	66	67	80	81	82	83						64	65	66	67	80	81	82	83
10					68	69	70	71	84	85	86	87						68	69	70	71	84	85	86	87
11					72	73	74	75	88	89	90	91						72	73	74	75	88	89	90	91
12					76	77	78	79	92	93	94	95						76	77	78	79	92	93	94	95

Algorithms: CubeLayout / 3DCube / Arrays / DataBase Algorithms / DataBase_CubeStates

Note that all centers of faces F and L have been set to -1 so that they can freely rotate.

Double Midge Flip Algorithms – FD Midges – 4/12

Algorithms	Centers F	Centers D	Index
MR2 U2 F2 ML F2 ML' U2 MR U2 F2 MR F2 MR' U2 MR2			1
MR2 B2 D2 ML D2 ML' F2 MR F2 D2 MR D2 MR' B2 MR2			2
MR2 U2 F2 ML' F2 ML D2 MR' D2 F2 MR' F2 MR U2 MR2			3
MR2 B2 D2 ML' D2 ML B2 MR' B2 D2 MR' D2 MR B2 MR2			4
ML2 U2 F2 MR F2 MR' D2 ML D2 F2 ML F2 ML' U2 ML2			5
ML2 B2 D2 MR D2 MR' B2 ML B2 D2 ML D2 ML' B2 ML2			6
ML2 U2 F2 MR' F2 MR U2 ML' U2 F2 ML' F2 ML U2 ML2			7
ML2 B2 D2 MR' D2 MR F2 ML' F2 D2 ML' D2 ML B2 ML2			8
MR2 U2 MR F2 MR' F2 U2 MR' U2 ML F2 ML' F2 U2 MR2			9
MR2 B2 MR D2 MR' D2 F2 MR' F2 ML D2 ML' D2 B2 MR2			10
MR2 U2 MR' F2 MR F2 D2 MR D2 ML' F2 ML F2 U2 MR2			11
MR2 B2 MR' D2 MR D2 B2 MR B2 ML' D2 ML D2 B2 MR2			12
ML2 U2 ML F2 ML' F2 D2 ML' D2 MR F2 MR' F2 U2 ML2			13
ML2 B2 ML D2 ML' D2 B2 ML' B2 MR D2 MR' D2 B2 ML2			14
ML2 U2 ML' F2 ML F2 U2 ML U2 MR' F2 MR F2 U2 ML2			15
ML2 B2 ML' D2 ML D2 F2 ML F2 MR' D2 MR D2 B2 ML2			16
MR2 U2 F2 ML F2 MR' F2 MR F2 D2 MR D2 ML' U2 MR2			17
MR2 B2 D2 ML D2 MR' D2 MR D2 B2 MR B2 ML' B2 MR2			18
MR2 U2 F2 ML' F2 MR F2 MR' F2 U2 MR' U2 ML U2 MR2			19
MR2 B2 D2 ML' D2 MR D2 MR' D2 F2 MR' F2 ML B2 MR2			20
ML2 U2 F2 MR F2 ML' F2 ML F2 U2 ML U2 MR' U2 ML2			21
ML2 B2 D2 MR D2 ML' D2 ML D2 F2 ML F2 MR' B2 ML2			22
ML2 U2 F2 MR' F2 ML F2 ML' F2 D2 ML' D2 MR U2 ML2			23
ML2 B2 D2 MR' D2 ML D2 ML' D2 B2 ML' B2 MR B2 ML2			24
MR2 U2 ML D2 MR' D2 F2 MR' F2 MR F2 ML' F2 U2 MR2			25
MR2 B2 ML B2 MR' B2 D2 MR' D2 MR D2 ML' D2 B2 MR2			26
MR2 U2 ML' U2 MR U2 F2 MR F2 MR' F2 ML F2 U2 MR2			27
MR2 B2 ML' F2 MR F2 D2 MR D2 MR' D2 ML D2 B2 MR2			28
ML2 U2 MR U2 ML' U2 F2 ML' F2 ML F2 MR' F2 U2 ML2			29
ML2 B2 MR F2 ML' F2 D2 ML' D2 ML D2 MR' D2 B2 ML2			30
ML2 U2 MR' D2 ML D2 F2 ML F2 ML' F2 MR F2 U2 ML2			31
ML2 B2 MR' B2 ML B2 D2 ML D2 ML' D2 MR D2 B2 ML2			32
MR D2 MR' D2 ML D2 ML2 F2 MR' F2 ML D2 F2 MR2 F2			33
MR' F2 MR F2 ML' F2 ML2 D2 MR D2 ML' F2 D2 MR2 D2			34
ML F2 ML' F2 MR F2 MR2 D2 ML' D2 MR F2 D2 ML2 D2			35
ML' D2 ML D2 MR' D2 MR2 F2 ML F2 MR' D2 F2 ML2 F2			36
F2 MR2 F2 D2 ML' F2 MR F2 ML2 D2 ML' D2 MR D2 MR'			37
F2 ML2 F2 D2 MR F2 ML' F2 MR2 D2 MR D2 ML' D2 ML			38
D2 MR2 D2 F2 ML D2 MR' D2 ML2 F2 ML F2 MR' F2 MR			39
D2 ML2 D2 F2 MR' D2 ML D2 MR2 F2 MR' F2 ML F2 ML'			40
MR D2 ML' F2 ML F2 MR2 D2 MR' D2 MR D2 F2 MR2 F2			41
MR' F2 ML D2 ML' D2 MR2 F2 MR F2 MR' F2 D2 MR2 D2			42
ML F2 MR' D2 MR D2 ML2 F2 ML' F2 ML F2 D2 ML2 D2			43
ML' D2 MR F2 MR' F2 ML2 D2 ML D2 ML' D2 F2 ML2 F2			44
F2 MR2 F2 D2 MR' D2 MR D2 MR2 F2 ML' F2 ML D2 MR'			45
F2 ML2 F2 D2 ML D2 ML' D2 ML2 F2 MR F2 MR' D2 ML			46
D2 MR2 D2 F2 MR F2 MR' F2 MR2 D2 ML D2 ML' F2 MR			47
D2 ML2 D2 F2 ML' F2 ML F2 ML2 D2 MR' D2 MR F2 ML'			48

Cube Layout – Double Midge Flip – FD Midges – 4/12

AlgorithmFinder4 - Microsoft Excel

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
1					32	33	34	35										32	33	34	35				
2					36	37	38	39										36	37	38	39				
3					40	41	42	43										40	41	42	43				
4					44	45	46	47										44	45	46	47				
5	48	49	50	51	0	1	2	3	16	17	18	19		48	49	50	51	0	1	2	3	16	17	18	19
6	52	53	54	55	4	10	9	7	20	21	22	23		52	53	54	55	4	-1	-1	7	20	21	22	23
7	56	57	58	59	8	6	5	11	24	25	26	27		56	57	58	59	8	-1	-1	11	24	25	26	27
8	60	61	62	63	12	66	65	15	28	29	30	31		60	61	62	63	12	66	65	15	28	29	30	31
9					64	14	13	67	80	81	82	83						64	-1	-1	67	80	81	82	83
10					68	69	70	71	84	85	86	87						68	-1	-1	71	84	85	86	87
11					72	73	74	75	88	89	90	91						72	-1	-1	75	88	89	90	91
12					76	77	78	79	92	93	94	95						76	77	78	79	92	93	94	95

Algorithms: CubeLayout / 3DCube / Arrays / DataBase Algorithms / DataBase_CubeStates

Note that all centers of faces F and D have been set to -1 so that they can freely rotate.

Double Midge Flip Algorithms – RU Midges – 5/12

Algorithms	Centers R	Centers U	Index
MF2 L2 U2 MB U2 MB' R2 MF R2 U2 MF U2 MF' L2 MF2			1
MF2 D2 R2 MB R2 MB' D2 MF D2 R2 MF R2 MF' D2 MF2			2
MF2 L2 U2 MB' U2 MB L2 MF' L2 U2 MF' U2 MF L2 MF2			3
MF2 D2 R2 MB' R2 MB U2 MF' U2 R2 MF' R2 MF D2 MF2			4
MB2 L2 U2 MF U2 MF' L2 MB L2 U2 MB U2 MB' L2 MB2			5
MB2 D2 R2 MF R2 MF' U2 MB U2 R2 MB R2 MB' D2 MB2			6
MB2 L2 U2 MF' U2 MF R2 MB' R2 U2 MB' U2 MB L2 MB2			7
MB2 D2 R2 MF' R2 MF D2 MB' D2 R2 MB' R2 MB D2 MB2			8
MF2 L2 MF U2 MF' U2 R2 MF' R2 MB U2 MB' U2 L2 MF2			9
MF2 D2 MF R2 MF' R2 D2 MF' D2 MB R2 MB' R2 D2 MF2			10
MF2 L2 MF' U2 MF U2 L2 MF L2 MB' U2 MB U2 L2 MF2			11
MF2 D2 MF' R2 MF R2 U2 MF U2 MB' R2 MB R2 D2 MF2			12
MB2 L2 MB U2 MB' U2 L2 MB' L2 MF U2 MF' U2 L2 MB2			13
MB2 D2 MB R2 MB' R2 U2 MB' U2 MF R2 MF' R2 D2 MB2			14
MB2 L2 MB' U2 MB U2 R2 MB R2 MF' U2 MF U2 L2 MB2			15
MB2 D2 MB' R2 MB R2 D2 MB D2 MF' R2 MF R2 D2 MB2			16
MF2 L2 U2 MB U2 MF' U2 MF U2 L2 MF L2 MB' L2 MF2			17
MF2 D2 R2 MB R2 MF' R2 MF R2 U2 MF U2 MB' D2 MF2			18
MF2 L2 U2 MB' U2 MF U2 MF' U2 R2 MF' R2 MB L2 MF2			19
MF2 D2 R2 MB' R2 MF R2 MF' R2 D2 MF' D2 MB D2 MF2			20
MB2 L2 U2 MF U2 MB' U2 MB U2 R2 MB R2 MF' L2 MB2			21
MB2 D2 R2 MF R2 MB' R2 MB R2 D2 MB D2 MF' D2 MB2			22
MB2 L2 U2 MF' U2 MB U2 MB' U2 L2 MB' L2 MF L2 MB2			23
MB2 D2 R2 MF' R2 MB R2 MB' R2 U2 MB' U2 MF D2 MB2			24
MF2 L2 MB L2 MF' L2 U2 MF' U2 MF U2 MB' U2 L2 MF2			25
MF2 D2 MB U2 MF' U2 R2 MF' R2 MF R2 MB' R2 D2 MF2			26
MF2 L2 MB' R2 MF R2 U2 MF U2 MF' U2 MB U2 L2 MF2			27
MF2 D2 MB' D2 MF D2 R2 MF R2 MF' R2 MB R2 D2 MF2			28
MB2 L2 MF R2 MB' R2 U2 MB' U2 MB U2 MF' U2 L2 MB2			29
MB2 D2 MF D2 MB' D2 R2 MB' R2 MB R2 MF' R2 D2 MB2			30
MB2 L2 MF' L2 MB L2 U2 MB U2 MB' U2 MF U2 L2 MB2			31
MB2 D2 MF' U2 MB U2 R2 MB R2 MB' R2 MF R2 D2 MB2			32
MF U2 MF' U2 MB U2 MB2 R2 MF' R2 MB U2 R2 MF2 R2			33
MF' R2 MF R2 MB' R2 MB2 U2 MF U2 MB' R2 U2 MF2 U2			34
MB R2 MB' R2 MF R2 MF2 U2 MB' U2 MF R2 U2 MB2 U2			35
MB' U2 MB U2 MF' U2 MF2 R2 MB R2 MF' U2 R2 MB2 R2			36
R2 MF2 R2 U2 MB' R2 MF R2 MB2 U2 MB' U2 MF U2 MF'			37
R2 MB2 R2 U2 MF R2 MB' R2 MF2 U2 MF U2 MB' U2 MB			38
U2 MF2 U2 R2 MB U2 MF' U2 MB2 R2 MB R2 MF' R2 MF			39
U2 MB2 U2 R2 MF' U2 MB U2 MF2 R2 MF' R2 MB R2 MB'			40
MF U2 MB' R2 MB R2 MF2 U2 MF' U2 MF U2 R2 MF2 R2			41
MF' R2 MB U2 MB' U2 MF2 R2 MF R2 MF' R2 U2 MF2 U2			42
MB R2 MF' U2 MF U2 MB2 R2 MB' R2 MB R2 U2 MB2 U2			43
MB' U2 MF R2 MF' R2 MB2 U2 MB U2 MB' U2 R2 MB2 R2			44
R2 MF2 R2 U2 MF' U2 MF U2 MF2 R2 MB' R2 MB U2 MF'			45
R2 MB2 R2 U2 MB U2 MB' U2 MB2 R2 MF R2 MF' U2 MB			46
U2 MF2 U2 R2 MF R2 MF' R2 MF2 U2 MB U2 MB' R2 MF			47
U2 MB2 U2 R2 MB' R2 MB R2 MB2 U2 MF' U2 MF R2 MB'			48

Cube Layout – Double Midge Flip – RU Midges – 5/12

AlgorithmFinder4 - Microsoft Excel

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
1					32	33	34	35										32	33	34	35				
2					36	37	38	17										36	-1	-1	-1				
3					40	41	42	18										40	-1	-1	-1				
4					44	45	46	47										44	45	46	47				
5	48	49	50	51	0	1	2	3	16	39	43	19		48	49	50	51	0	1	2	3	16	39	43	19
6	52	53	54	55	4	5	6	7	20	26	25	23		52	53	54	55	4	5	6	7	20	-1	-1	23
7	56	57	58	59	8	9	10	11	24	22	21	27		56	57	58	59	8	9	10	11	24	-1	-1	27
8	60	61	62	63	12	13	14	15	28	29	30	31		60	61	62	63	12	13	14	15	28	29	30	31
9					64	65	66	67	80	81	82	83						64	65	66	67	80	81	82	83
10					68	69	70	71	84	85	86	87						68	69	70	71	84	85	86	87
11					72	73	74	75	88	89	90	91						72	73	74	75	88	89	90	91
12					76	77	78	79	92	93	94	95						76	77	78	79	92	93	94	95

Algorithms: CubeLayout / 3DCube / Arrays / DataBase Algorithms / DataBase_CubeStates

Prêt

DoubleMidgeFlip - ... Microsoft Excel - Alg...

FR 05:50

Note that all centers of faces R and U have been set to -1 so that they can freely rotate.

Double Midge Flip Algorithms – RB Midges – 6/12			
Algorithms	Centers R	Centers B	Index
			1
			2
			3
			4
			5
			6
			7
			8
			9
			10
			11
			12
			13
			14
			15
			16
			17
			18
			19
			20
			21
			22
			23
			24
			25
			26
			27
			28
			29
			30
			31
			32
			33
			34
			35
			36
			37
			38
			39
			40
			41
			42
			43
			44
			45
			46
			47
			48

Cube Layout – Double Midge Flip – RB Midges – 6/12

AlgorithmFinder4 - Microsoft Excel

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
1					32	33	34	35										32	33	34	35				
2					36	37	38	39										36	37	38	39				
3					40	41	42	43										40	41	42	43				
4					44	45	46	47										44	45	46	47				
5	48	49	50	51	0	1	2	3	16	17	18	19		48	49	50	51	0	1	2	3	16	17	18	19
6	52	53	54	55	4	5	6	7	20	26	25	88		52	53	54	55	4	5	6	7	20	-1	-1	88
7	56	57	58	59	8	9	10	11	24	22	21	84		56	57	58	59	8	9	10	11	24	-1	-1	84
8	60	61	62	63	12	13	14	15	28	29	30	31		60	61	62	63	12	13	14	15	28	29	30	31
9					64	65	66	67	80	81	82	83						64	65	66	67	80	81	82	83
10					68	69	70	71	27	85	86	87						68	69	70	71	-1	-1	-1	87
11					72	73	74	75	23	89	90	91						72	73	74	75	-1	-1	-1	91
12					76	77	78	79	92	93	94	95						76	77	78	79	92	93	94	95

Algorithms: CubeLayout / 3DCube / Arrays / DataBase Algorithms / DataBase_CubeStates

Prêt

DoubleMidgeFlip - ... Microsoft Excel - Alg...

FR 05:54

Note that all centers of faces R and B have been set to -1 so that they can freely rotate.

Double Midge Flip Algorithms – RD Midges – 7/12

Algorithms	Centers R	Centers D	Index
MF2 U2 R2 MB R2 MB' D2 MF D2 R2 MF R2 MF' U2 MF2			1
MF2 L2 D2 MB D2 MB' L2 MF L2 D2 MF D2 MF' L2 MF2			2
MF2 U2 R2 MB' R2 MB U2 MF' U2 R2 MF' R2 MF U2 MF2			3
MF2 L2 D2 MB' D2 MB R2 MF' R2 D2 MF' D2 MF L2 MF2			4
MB2 U2 R2 MF R2 MF' U2 MB U2 R2 MB R2 MB' U2 MB2			5
MB2 L2 D2 MF D2 MF' R2 MB R2 D2 MB D2 MB' L2 MB2			6
MB2 U2 R2 MF' R2 MF D2 MB' D2 R2 MB' R2 MB U2 MB2			7
MB2 L2 D2 MF' D2 MF L2 MB' L2 D2 MB' D2 MB L2 MB2			8
MF2 U2 MF R2 MF' R2 D2 MF' D2 MB R2 MB' R2 U2 MF2			9
MF2 L2 MF D2 MF' D2 L2 MF' L2 MB D2 MB' D2 L2 MF2			10
MF2 U2 MF' R2 MF R2 U2 MF U2 MB' R2 MB R2 U2 MF2			11
MF2 L2 MF' D2 MF D2 R2 MF R2 MB' D2 MB D2 L2 MF2			12
MB2 U2 MB R2 MB' R2 U2 MB' U2 MF R2 MF' R2 U2 MB2			13
MB2 L2 MB D2 MB' D2 R2 MB' R2 MF D2 MF' D2 L2 MB2			14
MB2 U2 MB' R2 MB R2 D2 MB D2 MF' R2 MF R2 U2 MB2			15
MB2 L2 MB' D2 MB D2 L2 MB L2 MF' D2 MF D2 L2 MB2			16
MF2 U2 R2 MB R2 MF' R2 MF R2 U2 MF U2 MB' U2 MF2			17
MF2 L2 D2 MB D2 MF' D2 MF D2 R2 MF R2 MB' L2 MF2			18
MF2 U2 R2 MB' R2 MF R2 MF' R2 D2 MF' D2 MB U2 MF2			19
MF2 L2 D2 MB' D2 MF D2 MF' D2 L2 MF' L2 MB L2 MF2			20
MB2 U2 R2 MF R2 MB' R2 MB R2 D2 MB D2 MF' U2 MB2			21
MB2 L2 D2 MF D2 MB' D2 MB D2 L2 MB L2 MF' L2 MB2			22
MB2 U2 R2 MF' R2 MB R2 MB' R2 U2 MB' U2 MF U2 MB2			23
MB2 L2 D2 MF' D2 MB D2 MB' D2 R2 MB' R2 MF L2 MB2			24
MF2 U2 MB U2 MF' U2 R2 MF' R2 MF R2 MB' R2 U2 MF2			25
MF2 L2 MB R2 MF' R2 D2 MF' D2 MF D2 MB' D2 L2 MF2			26
MF2 U2 MB' D2 MF D2 R2 MF R2 MF' R2 MB R2 U2 MF2			27
MF2 L2 MB' L2 MF L2 D2 MF D2 MF' D2 MB D2 L2 MF2			28
MB2 U2 MF D2 MB' D2 R2 MB' R2 MB R2 MF' R2 U2 MB2			29
MB2 L2 MF L2 MB' L2 D2 MB' D2 MB D2 MF' D2 L2 MB2			30
MB2 U2 MF' U2 MB U2 R2 MB R2 MB' R2 MF R2 U2 MB2			31
MB2 L2 MF' R2 MB R2 D2 MB D2 MB' D2 MF D2 L2 MB2			32
MF R2 MF' R2 MB R2 MB2 D2 MF' D2 MB R2 D2 MF2 D2			33
MF' D2 MF D2 MB' D2 MB2 R2 MF R2 MB' D2 R2 MF2 R2			34
MB D2 MB' D2 MF D2 MF2 R2 MB' R2 MF D2 R2 MB2 R2			35
MB' R2 MB R2 MF' R2 MF2 D2 MB D2 MF' R2 D2 MB2 D2			36
R2 MF2 R2 D2 MB R2 MF' R2 MB2 D2 MB D2 MF' D2 MF			37
R2 MB2 R2 D2 MF' R2 MB R2 MF2 D2 MF' D2 MB D2 MB'			38
D2 MF2 D2 R2 MB' D2 MF D2 MB2 R2 MB' R2 MF R2 MF'			39
D2 MB2 D2 R2 MF D2 MB' D2 MF2 R2 MF R2 MB' R2 MB			40
MF R2 MB' D2 MB D2 MF2 R2 MF' R2 MF R2 D2 MF2 D2			41
MF' D2 MB R2 MB' R2 MF2 D2 MF D2 MF' D2 R2 MF2 R2			42
MB D2 MF' R2 MF R2 MB2 D2 MB' D2 MB D2 R2 MB2 R2			43
MB' R2 MF D2 MF' D2 MB2 R2 MB R2 MB' R2 D2 MB2 D2			44
R2 MF2 R2 D2 MF D2 MF' D2 MF2 R2 MB R2 MB' D2 MF			45
R2 MB2 R2 D2 MB' D2 MB D2 MB2 R2 MF' R2 MF D2 MB'			46
D2 MF2 D2 R2 MF' R2 MF R2 MF2 D2 MB' D2 MB R2 MF'			47
D2 MB2 D2 R2 MB R2 MB' R2 MB2 D2 MF D2 MF' R2 MB			48

Cube Layout – Double Midge Flip – RD Midges – 7/12

AlgorithmFinder4 - Microsoft Excel

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
1					32	33	34	35										32	33	34	35				
2					36	37	38	39										36	37	38	39				
3					40	41	42	43										40	41	42	43				
4					44	45	46	47										44	45	46	47				
5	48	49	50	51	0	1	2	3	16	17	18	19		48	49	50	51	0	1	2	3	16	17	18	19
6	52	53	54	55	4	5	6	7	20	26	25	23		52	53	54	55	4	5	6	7	20	-1	-1	23
7	56	57	58	59	8	9	10	11	24	22	21	27		56	57	58	59	8	9	10	11	24	-1	-1	27
8	60	61	62	63	12	13	14	15	28	75	71	31		60	61	62	63	12	13	14	15	28	75	71	31
9					64	65	66	67	80	81	82	83						64	65	66	67	80	81	82	83
10					68	69	70	30	84	85	86	87						68	-1	-1	-1	84	85	86	87
11					72	73	74	29	88	89	90	91						72	-1	-1	-1	88	89	90	91
12					76	77	78	79	92	93	94	95						76	77	78	79	92	93	94	95

Algorithms: CubeLayout / 3DCube / Arrays / DataBase Algorithms / DataBase_CubeStates

Prêt

DoubleMidgeFlip - ... Microsoft Excel - Alg...

FR 05:58

Note that all centers of faces R and D have been set to -1 so that they can freely rotate.

Double Midge Flip Algorithms – UB Midges – 8/12

Algorithms	Centers U	Centers B	Index
MR2 F2 U2 ML U2 ML' B2 MR B2 U2 MR U2 MR' F2 MR2			1
MR2 D2 B2 ML B2 ML' D2 MR D2 B2 MR B2 MR' D2 MR2			2
MR2 F2 U2 ML' U2 ML F2 MR' F2 U2 MR' U2 MR F2 MR2			3
MR2 D2 B2 ML' B2 ML U2 MR' U2 B2 MR' B2 MR D2 MR2			4
ML2 F2 U2 MR U2 MR' F2 ML F2 U2 ML U2 ML' F2 ML2			5
ML2 D2 B2 MR B2 MR' U2 ML U2 B2 ML B2 ML' D2 ML2			6
ML2 F2 U2 MR' U2 MR B2 ML' B2 U2 ML' U2 ML F2 ML2			7
ML2 D2 B2 MR' B2 MR D2 ML' D2 B2 ML' B2 ML D2 ML2			8
MR2 F2 MR U2 MR' U2 B2 MR' B2 ML U2 ML' U2 F2 MR2			9
MR2 D2 MR B2 MR' B2 D2 MR' D2 ML B2 ML' B2 D2 MR2			10
MR2 F2 MR' U2 MR U2 F2 MR F2 ML' U2 ML U2 F2 MR2			11
MR2 D2 MR' B2 MR B2 U2 MR U2 ML' B2 ML B2 D2 MR2			12
ML2 F2 ML U2 ML' U2 F2 ML' F2 MR U2 MR' U2 F2 ML2			13
ML2 D2 ML B2 ML' B2 U2 ML' U2 MR B2 MR' B2 D2 ML2			14
ML2 F2 ML' U2 ML U2 B2 ML B2 MR' U2 MR U2 F2 ML2			15
ML2 D2 ML' B2 ML B2 D2 ML D2 MR' B2 MR B2 D2 ML2			16
MR2 F2 U2 ML U2 MR' U2 MR U2 F2 MR F2 ML' F2 MR2			17
MR2 D2 B2 ML B2 MR' B2 MR B2 U2 MR U2 ML' D2 MR2			18
MR2 F2 U2 ML' U2 MR U2 MR' U2 B2 MR' B2 ML F2 MR2			19
MR2 D2 B2 ML' B2 MR B2 MR' B2 D2 MR' D2 ML D2 MR2			20
ML2 F2 U2 MR U2 ML' U2 ML U2 B2 ML B2 MR' F2 ML2			21
ML2 D2 B2 MR B2 ML' B2 ML B2 D2 ML D2 MR' D2 ML2			22
ML2 F2 U2 MR' U2 ML U2 ML' U2 F2 ML' F2 MR F2 ML2			23
ML2 D2 B2 MR' B2 ML B2 ML' B2 U2 ML' U2 MR D2 ML2			24
MR2 F2 ML F2 MR' F2 U2 MR' U2 MR U2 ML' U2 F2 MR2			25
MR2 D2 ML U2 MR' U2 B2 MR' B2 MR B2 ML' B2 D2 MR2			26
MR2 F2 ML' B2 MR B2 U2 MR U2 MR' U2 ML U2 F2 MR2			27
MR2 D2 ML' D2 MR D2 B2 MR B2 MR' B2 ML B2 D2 MR2			28
ML2 F2 MR B2 ML' B2 U2 ML' U2 ML U2 MR' U2 F2 ML2			29
ML2 D2 MR D2 ML' D2 B2 ML' B2 ML B2 MR' B2 D2 ML2			30
ML2 F2 MR' F2 ML F2 U2 ML U2 ML' U2 MR U2 F2 ML2			31
ML2 D2 MR' U2 ML U2 B2 ML B2 ML' B2 MR B2 D2 ML2			32
MR U2 MR' U2 ML U2 ML2 B2 MR' B2 ML U2 B2 MR2 B2			33
MR' B2 MR B2 ML' B2 ML2 U2 MR U2 ML' B2 U2 MR2 U2			34
ML B2 ML' B2 MR B2 MR2 U2 ML' U2 MR B2 U2 ML2 U2			35
ML' U2 ML U2 MR' U2 MR2 B2 ML B2 MR' U2 B2 ML2 B2			36
U2 MR2 U2 B2 ML U2 MR' U2 ML2 B2 ML B2 MR' B2 MR			37
U2 ML2 U2 B2 MR' U2 ML U2 MR2 B2 MR' B2 ML B2 ML'			38
B2 MR2 B2 U2 ML' B2 MR B2 ML2 U2 ML' U2 MR U2 MR'			39
B2 ML2 B2 U2 MR B2 ML' B2 MR2 U2 MR U2 ML' U2 ML			40
MR U2 ML' B2 ML B2 MR2 U2 MR' U2 MR U2 B2 MR2 B2			41
MR' B2 ML U2 ML' U2 MR2 B2 MR B2 MR' B2 U2 MR2 U2			42
ML B2 MR' U2 MR U2 ML2 B2 ML' B2 ML B2 U2 ML2 U2			43
ML' U2 MR B2 MR' B2 ML2 U2 ML U2 ML' U2 B2 ML2 B2			44
U2 MR2 U2 B2 MR B2 MR' B2 MR2 U2 ML U2 ML' B2 MR			45
U2 ML2 U2 B2 ML' B2 ML B2 ML2 U2 MR' U2 MR B2 ML'			46
B2 MR2 B2 U2 MR' U2 MR U2 MR2 B2 ML' B2 ML U2 MR'			47
B2 ML2 B2 U2 ML U2 ML' U2 ML2 B2 MR B2 MR' U2 ML			48

Cube Layout – Double Midge Flip – UB Midges – 8/12

AlgorithmFinder4 - Microsoft Excel

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
1					32	81	82	35										32	81	82	35				
2					36	42	41	39										36	-1	-1	39				
3					40	38	37	43										40	-1	-1	43				
4					44	45	46	47										44	45	46	47				
5	48	49	50	51	0	1	2	3	16	17	18	19		48	49	50	51	0	1	2	3	16	17	18	19
6	52	53	54	55	4	5	6	7	20	21	22	23		52	53	54	55	4	5	6	7	20	21	22	23
7	56	57	58	59	8	9	10	11	24	25	26	27		56	57	58	59	8	9	10	11	24	25	26	27
8	60	61	62	63	12	13	14	15	28	29	30	31		60	61	62	63	12	13	14	15	28	29	30	31
9					64	65	66	67	80	33	34	83						64	65	66	67	80	-1	-1	83
10					68	69	70	71	84	85	86	87						68	69	70	71	84	-1	-1	87
11					72	73	74	75	88	89	90	91						72	73	74	75	88	-1	-1	91
12					76	77	78	79	92	93	94	95						76	77	78	79	92	93	94	95

Algorithms: CubeLayout / 3DCube / Arrays / DataBase Algorithms / DataBase_CubeStates

Prêt

DoubleMidgeFlip - ... Microsoft Excel - Alg...

FR 214 % 06:01

Note that all centers of faces U and B have been set to -1 so that they can freely rotate.

Double Midge Flip Algorithms – UL Midges – 9/12

Algorithms	Centers U	Centers L	Index
MF2 R2 U2 MB U2 MB' R2 MF R2 U2 MF U2 MF' R2 MF2			1
MF2 D2 L2 MB L2 MB' U2 MF U2 L2 MF L2 MF' D2 MF2			2
MF2 R2 U2 MB' U2 MB L2 MF' L2 U2 MF' U2 MF R2 MF2			3
MF2 D2 L2 MB' L2 MB D2 MF' D2 L2 MF' L2 MF D2 MF2			4
MB2 R2 U2 MF U2 MF' L2 MB L2 U2 MB U2 MB' R2 MB2			5
MB2 D2 L2 MF L2 MF' D2 MB D2 L2 MB L2 MB' D2 MB2			6
MB2 R2 U2 MF' U2 MF R2 MB' R2 U2 MB' U2 MB R2 MB2			7
MB2 D2 L2 MF' L2 MF U2 MB' U2 L2 MB' L2 MB D2 MB2			8
MF2 R2 MF U2 MF' U2 R2 MF' R2 MB U2 MB' U2 R2 MF2			9
MF2 D2 MF L2 MF' L2 U2 MF' U2 MB L2 MB' L2 D2 MF2			10
MF2 R2 MF' U2 MF U2 L2 MF L2 MB' U2 MB U2 R2 MF2			11
MF2 D2 MF' L2 MF L2 D2 MF D2 MB' L2 MB L2 D2 MF2			12
MB2 R2 MB U2 MB' U2 L2 MB' L2 MF U2 MF' U2 R2 MB2			13
MB2 D2 MB L2 MB' L2 D2 MB' D2 MF L2 MF' L2 D2 MB2			14
MB2 R2 MB' U2 MB U2 R2 MB R2 MF' U2 MF U2 R2 MB2			15
MB2 D2 MB' L2 MB L2 U2 MB U2 MF' L2 MF L2 D2 MB2			16
MF2 R2 U2 MB U2 MF' U2 MF U2 L2 MF L2 MB' R2 MF2			17
MF2 D2 L2 MB L2 MF' L2 MF L2 D2 MF D2 MB' D2 MF2			18
MF2 R2 U2 MB' U2 MF U2 MF' U2 R2 MF' R2 MB R2 MF2			19
MF2 D2 L2 MB' L2 MF L2 MF' L2 U2 MF' U2 MB D2 MF2			20
MB2 R2 U2 MF U2 MB' U2 MB U2 R2 MB R2 MF' R2 MB2			21
MB2 D2 L2 MF L2 MB' L2 MB L2 U2 MB U2 MF' D2 MB2			22
MB2 R2 U2 MF' U2 MB U2 MB' U2 L2 MB' L2 MF R2 MB2			23
MB2 D2 L2 MF' L2 MB L2 MB' L2 D2 MB' D2 MF D2 MB2			24
MF2 R2 MB L2 MF' L2 U2 MF' U2 MF U2 MB' U2 R2 MF2			25
MF2 D2 MB D2 MF' D2 L2 MF' L2 MF L2 MB' L2 D2 MF2			26
MF2 R2 MB' R2 MF R2 U2 MF U2 MF' U2 MB U2 R2 MF2			27
MF2 D2 MB' U2 MF U2 L2 MF L2 MF' L2 MB L2 D2 MF2			28
MB2 R2 MF R2 MB' R2 U2 MB' U2 MB U2 MF' U2 R2 MB2			29
MB2 D2 MF U2 MB' U2 L2 MB' L2 MB L2 MF' L2 D2 MB2			30
MB2 R2 MF' L2 MB L2 U2 MB U2 MB' U2 MF U2 R2 MB2			31
MB2 D2 MF' D2 MB D2 L2 MB L2 MB' L2 MF L2 D2 MB2			32
MF L2 MF' L2 MB L2 MB2 U2 MF' U2 MB L2 U2 MF2 U2			33
MF' U2 MF U2 MB' U2 MB2 L2 MF L2 MB' U2 L2 MF2 L2			34
MB U2 MB' U2 MF U2 MF2 L2 MB' L2 MF U2 L2 MB2 L2			35
MB' L2 MB L2 MF' L2 MF2 U2 MB U2 MF' L2 U2 MB2 U2			36
U2 MF2 U2 L2 MB' U2 MF U2 MB2 L2 MB' L2 MF L2 MF'			37
U2 MB2 U2 L2 MF U2 MB' U2 MF2 L2 MF L2 MB' L2 MB			38
L2 MF2 L2 U2 MB L2 MF' L2 MB2 U2 MB U2 MF' U2 MF			39
L2 MB2 L2 U2 MF' L2 MB L2 MF2 U2 MF' U2 MB U2 MB'			40
MF L2 MB' U2 MB U2 MF2 L2 MF' L2 MF L2 U2 MF2 U2			41
MF' U2 MB L2 MB' L2 MF2 U2 MF U2 MF' U2 L2 MF2 L2			42
MB U2 MF' L2 MF L2 MB2 U2 MB' U2 MB U2 L2 MB2 L2			43
MB' L2 MF U2 MF' U2 MB2 L2 MB L2 MB' L2 U2 MB2 U2			44
U2 MF2 U2 L2 MF' L2 MF L2 MF2 U2 MB' U2 MB L2 MF'			45
U2 MB2 U2 L2 MB L2 MB' L2 MB2 U2 MF U2 MF' L2 MB			46
L2 MF2 L2 U2 MF U2 MF' U2 MF2 L2 MB L2 MB' U2 MF			47
L2 MB2 L2 U2 MB' U2 MB U2 MB2 L2 MF' L2 MF U2 MB'			48

Cube Layout – Double Midge Flip – UL Midges – 9/12

AlgorithmFinder4 - Microsoft Excel

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
1					32	33	34	35										32	33	34	35				
2					50	42	41	39										50	-1	-1	39				
3					49	38	37	43										49	-1	-1	43				
4					44	45	46	47										44	45	46	47				
5	48	40	36	51	0	1	2	3	16	17	18	19		48	-1	-1	51	0	1	2	3	16	17	18	19
6	52	53	54	55	4	5	6	7	20	21	22	23		52	-1	-1	55	4	5	6	7	20	21	22	23
7	56	57	58	59	8	9	10	11	24	25	26	27		56	-1	-1	59	8	9	10	11	24	25	26	27
8	60	61	62	63	12	13	14	15	28	29	30	31		60	61	62	63	12	13	14	15	28	29	30	31
9					64	65	66	67	80	81	82	83						64	65	66	67	80	81	82	83
10					68	69	70	71	84	85	86	87						68	69	70	71	84	85	86	87
11					72	73	74	75	88	89	90	91						72	73	74	75	88	89	90	91
12					76	77	78	79	92	93	94	95						76	77	78	79	92	93	94	95

Algorithms: CubeLayout / 3DCube / Arrays / DataBase Algorithms / DataBase_CubeStates

Prêt

DoubleMidgeFlip - ... Microsoft Excel - Alg...

FR 214 % 06:05

Note that all centers of faces U and L have been set to -1 so that they can freely rotate.

Double Midge Flip Algorithms – LB Midges – 10/12

Algorithms	Centers L	Centers B	Index
MU2 F2 L2 MD L2 MD' B2 MU B2 L2 MU L2 MU' F2 MU2			1
MU2 R2 B2 MD B2 MD' R2 MU R2 B2 MU B2 MU' R2 MU2			2
MU2 F2 L2 MD' L2 MD F2 MU' F2 L2 MU' L2 MU F2 MU2			3
MU2 R2 B2 MD' B2 MD L2 MU' L2 B2 MU' B2 MU R2 MU2			4
MD2 F2 L2 MU L2 MU' F2 MD F2 L2 MD L2 MD' F2 MD2			5
MD2 R2 B2 MU B2 MU' L2 MD L2 B2 MD B2 MD' R2 MD2			6
MD2 F2 L2 MU' L2 MU B2 MD' B2 L2 MD' L2 MD F2 MD2			7
MD2 R2 B2 MU' B2 MU R2 MD' R2 B2 MD' B2 MD R2 MD2			8
MU2 F2 MU L2 MU' L2 B2 MU' B2 MD L2 MD' L2 F2 MU2			9
MU2 R2 MU B2 MU' B2 R2 MU' R2 MD B2 MD' B2 R2 MU2			10
MU2 F2 MU' L2 MU L2 F2 MU F2 MD' L2 MD L2 F2 MU2			11
MU2 R2 MU' B2 MU B2 L2 MU L2 MD' B2 MD B2 R2 MU2			12
MD2 F2 MD L2 MD' L2 F2 MD' F2 MU L2 MU' L2 F2 MD2			13
MD2 R2 MD B2 MD' B2 L2 MD' L2 MU B2 MU' B2 R2 MD2			14
MD2 F2 MD' L2 MD L2 B2 MD B2 MU' L2 MU L2 F2 MD2			15
MD2 R2 MD' B2 MD B2 R2 MD R2 MU' B2 MU B2 R2 MD2			16
MU2 F2 L2 MD L2 MU' L2 MU L2 F2 MU F2 MD' F2 MU2			17
MU2 R2 B2 MD B2 MU' B2 MU B2 L2 MU L2 MD' R2 MU2			18
MU2 F2 L2 MD' L2 MU L2 MU' L2 B2 MU' B2 MD F2 MU2			19
MU2 R2 B2 MD' B2 MU B2 MU' B2 R2 MU' R2 MD R2 MU2			20
MD2 F2 L2 MU L2 MD' L2 MD L2 B2 MD B2 MU' F2 MD2			21
MD2 R2 B2 MU B2 MD' B2 MD B2 R2 MD R2 MU' R2 MD2			22
MD2 F2 L2 MU' L2 MD L2 MD' L2 F2 MD' F2 MU F2 MD2			23
MD2 R2 B2 MU' B2 MD B2 MD' B2 L2 MD' L2 MU R2 MD2			24
MU2 F2 MD F2 MU' F2 L2 MU' L2 MU L2 MD' L2 F2 MU2			25
MU2 R2 MD L2 MU' L2 B2 MU' B2 MU B2 MD' B2 R2 MU2			26
MU2 F2 MD' B2 MU B2 L2 MU L2 MU' L2 MD L2 F2 MU2			27
MU2 R2 MD' R2 MU R2 B2 MU B2 MU' B2 MD B2 R2 MU2			28
MD2 F2 MU B2 MD' B2 L2 MD' L2 MD L2 MU' L2 F2 MD2			29
MD2 R2 MU R2 MD' R2 B2 MD' B2 MD B2 MU' B2 R2 MD2			30
MD2 F2 MU' F2 MD F2 L2 MD L2 MD' L2 MU L2 F2 MD2			31
MD2 R2 MU' L2 MD L2 B2 MD B2 MD' B2 MU B2 R2 MD2			32
MU L2 MU' L2 MD L2 MD2 B2 MU' B2 MD L2 B2 MU2 B2			33
MU' B2 MU B2 MD' B2 MD2 L2 MU L2 MD' B2 L2 MU2 L2			34
MD B2 MD' B2 MU B2 MU2 L2 MD' L2 MU B2 L2 MD2 L2			35
MD' L2 MD L2 MU' L2 MU2 B2 MD B2 MU' L2 B2 MD2 B2			36
L2 MU2 L2 B2 MD L2 MU' L2 MD2 B2 MD B2 MU' B2 MU			37
L2 MD2 L2 B2 MU' L2 MD L2 MU2 B2 MU' B2 MD B2 MD'			38
B2 MU2 B2 L2 MD' B2 MU B2 MD2 L2 MD' L2 MU L2 MU'			39
B2 MD2 B2 L2 MU B2 MD' B2 MU2 L2 MU L2 MD' L2 MD			40
MU L2 MD' B2 MD B2 MU2 L2 MU' L2 MU L2 B2 MU2 B2			41
MU' B2 MD L2 MD' L2 MU2 B2 MU B2 MU' B2 L2 MU2 L2			42
MD B2 MU' L2 MU L2 MD2 B2 MD' B2 MD B2 L2 MD2 L2			43
MD' L2 MU B2 MU' B2 MD2 L2 MD L2 MD' L2 B2 MD2 B2			44
L2 MU2 L2 B2 MU B2 MU' B2 MU2 L2 MD L2 MD' B2 MU			45
L2 MD2 L2 B2 MD' B2 MD B2 MD2 L2 MU' L2 MU B2 MD'			46
B2 MU2 B2 L2 MU' L2 MU L2 MU2 B2 MD' B2 MD L2 MU'			47
B2 MD2 B2 L2 MD L2 MD' L2 MD2 B2 MU B2 MU' L2 MD			48

Cube Layout – Double Midge Flip – LB Midges – 10/12

AlgorithmFinder4 - Microsoft Excel

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
1					32	33	34	35										32	33	34	35				
2					36	37	38	39										36	37	38	39				
3					40	41	42	43										40	41	42	43				
4					44	45	46	47										44	45	46	47				
5	48	49	50	51	0	1	2	3	16	17	18	19		48	49	50	51	0	1	2	3	16	17	18	19
6	91	58	57	55	4	5	6	7	20	21	22	23		91	-1	-1	55	4	5	6	7	20	21	22	23
7	87	54	53	59	8	9	10	11	24	25	26	27		87	-1	-1	59	8	9	10	11	24	25	26	27
8	60	61	62	63	12	13	14	15	28	29	30	31		60	61	62	63	12	13	14	15	28	29	30	31
9					64	65	66	67	80	81	82	83						64	65	66	67	80	81	82	83
10					68	69	70	71	84	85	86	56						68	69	70	71	84	-1	-1	-1
11					72	73	74	75	88	89	90	52						72	73	74	75	88	-1	-1	-1
12					76	77	78	79	92	93	94	95						76	77	78	79	92	93	94	95

Algorithms: CubeLayout / 3DCube / Arrays / DataBase Algorithms / DataBase_CubeStates

Prêt

DoubleMidgeFlip - ... Microsoft Excel - Alg...

FR 06:09

Note that all centers of faces L and B have been set to -1 so that they can freely rotate.

Double Midge Flip Algorithms – LD Midges – 11/12

Algorithms	Centers L	Centers D	Index
MF2 R2 D2 MB D2 MB' L2 MF L2 D2 MF D2 MF' R2 MF2			1
MF2 U2 L2 MB L2 MB' U2 MF U2 L2 MF L2 MF' U2 MF2			2
MF2 R2 D2 MB' D2 MB R2 MF' R2 D2 MF' D2 MF R2 MF2			3
MF2 U2 L2 MB' L2 MB D2 MF' D2 L2 MF' L2 MF U2 MF2			4
MB2 R2 D2 MF D2 MF' R2 MB R2 D2 MB D2 MB' R2 MB2			5
MB2 U2 L2 MF L2 MF' D2 MB D2 L2 MB L2 MB' U2 MB2			6
MB2 R2 D2 MF' D2 MF L2 MB' L2 D2 MB' D2 MB R2 MB2			7
MB2 U2 L2 MF' L2 MF U2 MB' U2 L2 MB' L2 MB U2 MB2			8
MF2 R2 MF D2 MF' D2 L2 MF' L2 MB D2 MB' D2 R2 MF2			9
MF2 U2 MF L2 MF' L2 U2 MF' U2 MB L2 MB' L2 U2 MF2			10
MF2 R2 MF' D2 MF D2 R2 MF R2 MB' D2 MB D2 R2 MF2			11
MF2 U2 MF' L2 MF L2 D2 MF D2 MB' L2 MB L2 U2 MF2			12
MB2 R2 MB D2 MB' D2 R2 MB' R2 MF D2 MF' D2 R2 MB2			13
MB2 U2 MB L2 MB' L2 D2 MB' D2 MF L2 MF' L2 U2 MB2			14
MB2 R2 MB' D2 MB D2 L2 MB L2 MF' D2 MF D2 R2 MB2			15
MB2 U2 MB' L2 MB L2 U2 MB U2 MF' L2 MF L2 U2 MB2			16
MF2 R2 D2 MB D2 MF' D2 MF D2 R2 MF R2 MB' R2 MF2			17
MF2 U2 L2 MB L2 MF' L2 MF L2 D2 MF D2 MB' U2 MF2			18
MF2 R2 D2 MB' D2 MF D2 MF' D2 L2 MF' L2 MB R2 MF2			19
MF2 U2 L2 MB' L2 MF L2 MF' L2 U2 MF' U2 MB U2 MF2			20
MB2 R2 D2 MF D2 MB' D2 MB D2 L2 MB L2 MF' R2 MB2			21
MB2 U2 L2 MF L2 MB' L2 MB L2 U2 MB U2 MF' U2 MB2			22
MB2 R2 D2 MF' D2 MB D2 MB' D2 R2 MB' R2 MF R2 MB2			23
MB2 U2 L2 MF' L2 MB L2 MB' L2 D2 MB' D2 MF U2 MB2			24
MF2 R2 MB R2 MF' R2 D2 MF' D2 MF D2 MB' D2 R2 MF2			25
MF2 U2 MB D2 MF' D2 L2 MF' L2 MF L2 MB' L2 U2 MF2			26
MF2 R2 MB' L2 MF L2 D2 MF D2 MF' D2 MB D2 R2 MF2			27
MF2 U2 MB' U2 MF U2 L2 MF L2 MF' L2 MB L2 U2 MF2			28
MB2 R2 MF L2 MB' L2 D2 MB' D2 MB D2 MF' D2 R2 MB2			29
MB2 U2 MF U2 MB' U2 L2 MB' L2 MB L2 MF' L2 U2 MB2			30
MB2 R2 MF' R2 MB R2 D2 MB D2 MB' D2 MF D2 R2 MB2			31
MB2 U2 MF' D2 MB D2 L2 MB L2 MB' L2 MF L2 U2 MB2			32
MF D2 MF' D2 MB D2 MB2 L2 MF' L2 MB D2 L2 MF2 L2			33
MF' L2 MF L2 MB' L2 MB2 D2 MF D2 MB' L2 D2 MF2 D2			34
MB L2 MB' L2 MF L2 MF2 D2 MB' D2 MF L2 D2 MB2 D2			35
MB' D2 MB D2 MF' D2 MF2 L2 MB L2 MF' D2 L2 MB2 L2			36
L2 MF2 L2 D2 MB' L2 MF L2 MB2 D2 MB' D2 MF D2 MF'			37
L2 MB2 L2 D2 MF L2 MB' L2 MF2 D2 MF D2 MB' D2 MB			38
D2 MF2 D2 L2 MB D2 MF' D2 MB2 L2 MB L2 MF' L2 MF			39
D2 MB2 D2 L2 MF' D2 MB D2 MF2 L2 MF' L2 MB L2 MB'			40
MF D2 MB' L2 MB L2 MF2 D2 MF' D2 MF D2 L2 MF2 L2			41
MF' L2 MB D2 MB' D2 MF2 L2 MF L2 MF' L2 D2 MF2 D2			42
MB L2 MF' D2 MF D2 MB2 L2 MB' L2 MB L2 D2 MB2 D2			43
MB' D2 MF L2 MF' L2 MB2 D2 MB D2 MB' D2 L2 MB2 L2			44
L2 MF2 L2 D2 MF' D2 MF D2 MF2 L2 MB' L2 MB D2 MF'			45
L2 MB2 L2 D2 MB D2 MB' D2 MB2 L2 MF L2 MF' D2 MB			46
D2 MF2 D2 L2 MF L2 MF' L2 MF2 D2 MB D2 MB' L2 MF			47
D2 MB2 D2 L2 MB' L2 MB L2 MB2 D2 MF' D2 MF L2 MB'			48

Cube Layout – Double Midge Flip – LD Midges – 11/12

AlgorithmFinder4 - Microsoft Excel

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
1					32	33	34	35										32	33	34	35				
2					36	37	38	39										36	37	38	39				
3					40	41	42	43										40	41	42	43				
4					44	45	46	47										44	45	46	47				
5	48	49	50	51	0	1	2	3	16	17	18	19		48	49	50	51	0	1	2	3	16	17	18	19
6	52	58	57	55	4	5	6	7	20	21	22	23		52	-1	-1	55	4	5	6	7	20	21	22	23
7	56	54	53	59	8	9	10	11	24	25	26	27		56	-1	-1	59	8	9	10	11	24	25	26	27
8	60	68	72	63	12	13	14	15	28	29	30	31		60	68	72	63	12	13	14	15	28	29	30	31
9					64	65	66	67	80	81	82	83						64	65	66	67	80	81	82	83
10					61	69	70	71	84	85	86	87						-1	-1	-1	71	84	85	86	87
11					62	73	74	75	88	89	90	91						-1	-1	-1	75	88	89	90	91
12					76	77	78	79	92	93	94	95						76	77	78	79	92	93	94	95

Algorithms: CubeLayout / 3DCube / Arrays / DataBase Algorithms / DataBase_CubeStates

Prêt

DoubleMidgeFlip - ... Microsoft Excel - Alg...

FR 214 % 06:12

Note that all centers of faces L and D have been set to -1 so that they can freely rotate.

Double Midge Flip Algorithms – DB Midges – 12/12

Algorithms	Centers D	Centers B	Index
MR2 F2 D2 ML D2 ML' F2 MR F2 D2 MR D2 MR' F2 MR2			1
MR2 U2 B2 ML B2 ML' D2 MR D2 B2 MR B2 MR' U2 MR2			2
MR2 F2 D2 ML' D2 ML B2 MR' B2 D2 MR' D2 MR F2 MR2			3
MR2 U2 B2 ML' B2 ML U2 MR' U2 B2 MR' B2 MR U2 MR2			4
ML2 F2 D2 MR D2 MR' B2 ML B2 D2 ML D2 ML' F2 ML2			5
ML2 U2 B2 MR B2 MR' U2 ML U2 B2 ML B2 ML' U2 ML2			6
ML2 F2 D2 MR' D2 MR F2 ML' F2 D2 ML' D2 ML F2 ML2			7
ML2 U2 B2 MR' B2 MR D2 ML' D2 B2 ML' B2 ML U2 ML2			8
MR2 F2 MR D2 MR' D2 F2 MR' F2 ML D2 ML' D2 F2 MR2			9
MR2 U2 MR B2 MR' B2 D2 MR' D2 ML B2 ML' B2 U2 MR2			10
MR2 F2 MR' D2 MR D2 B2 MR B2 ML' D2 ML D2 F2 MR2			11
MR2 U2 MR' B2 MR B2 U2 MR U2 ML' B2 ML B2 U2 MR2			12
ML2 F2 ML D2 ML' D2 B2 ML' B2 MR D2 MR' D2 F2 ML2			13
ML2 U2 ML B2 ML' B2 U2 ML' U2 MR B2 MR' B2 U2 ML2			14
ML2 F2 ML' D2 ML D2 F2 ML F2 MR' D2 MR D2 F2 ML2			15
ML2 U2 ML' B2 ML B2 D2 ML D2 MR' B2 MR B2 U2 ML2			16
MR2 F2 D2 ML D2 MR' D2 MR D2 B2 MR B2 ML' F2 MR2			17
MR2 U2 B2 ML B2 MR' B2 MR B2 U2 MR U2 ML' U2 MR2			18
MR2 F2 D2 ML' D2 MR D2 MR' D2 F2 MR' F2 ML F2 MR2			19
MR2 U2 B2 ML' B2 MR B2 MR' B2 D2 MR' D2 ML U2 MR2			20
ML2 F2 D2 MR D2 ML' D2 ML D2 F2 ML F2 MR' F2 ML2			21
ML2 U2 B2 MR B2 ML' B2 ML B2 D2 ML D2 MR' U2 ML2			22
ML2 F2 D2 MR' D2 ML D2 ML' D2 B2 ML' B2 MR F2 ML2			23
ML2 U2 B2 MR' B2 ML B2 ML' B2 U2 ML' U2 MR U2 ML2			24
MR2 F2 ML B2 MR' B2 D2 MR' D2 MR D2 ML' D2 F2 MR2			25
MR2 U2 ML U2 MR' U2 B2 MR' B2 MR B2 ML' B2 U2 MR2			26
MR2 F2 ML' F2 MR F2 D2 MR D2 MR' D2 ML D2 F2 MR2			27
MR2 U2 ML' D2 MR D2 B2 MR B2 MR' B2 ML B2 U2 MR2			28
ML2 F2 MR F2 ML' F2 D2 ML' D2 ML D2 MR' D2 F2 ML2			29
ML2 U2 MR D2 ML' D2 B2 ML' B2 ML B2 MR' B2 U2 ML2			30
ML2 F2 MR' B2 ML B2 D2 ML D2 ML' D2 MR D2 F2 ML2			31
ML2 U2 MR' U2 ML U2 B2 ML B2 ML' B2 MR B2 U2 ML2			32
MR B2 MR' B2 ML B2 ML2 D2 MR' D2 ML B2 D2 MR2 D2			33
MR' D2 MR D2 ML' D2 ML2 B2 MR B2 ML' D2 B2 MR2 B2			34
ML D2 ML' D2 MR D2 MR2 B2 ML' B2 MR D2 B2 ML2 B2			35
ML' B2 ML B2 MR' B2 MR2 D2 ML D2 MR' B2 D2 ML2 D2			36
D2 MR2 D2 B2 ML' D2 MR D2 ML2 B2 ML' B2 MR B2 MR'			37
D2 ML2 D2 B2 MR D2 ML' D2 MR2 B2 MR B2 ML' B2 ML			38
B2 MR2 B2 D2 ML B2 MR' B2 ML2 D2 ML D2 MR' D2 MR			39
B2 ML2 B2 D2 MR' B2 ML B2 MR2 D2 MR' D2 ML D2 ML'			40
MR B2 ML' D2 ML D2 MR2 B2 MR' B2 MR B2 D2 MR2 D2			41
MR' D2 ML B2 ML' B2 MR2 D2 MR D2 MR' D2 B2 MR2 B2			42
ML D2 MR' B2 MR B2 ML2 D2 ML' D2 ML D2 B2 ML2 B2			43
ML' B2 MR D2 MR' D2 ML2 B2 ML B2 ML' B2 D2 ML2 D2			44
D2 MR2 D2 B2 MR' B2 MR B2 MR2 D2 ML' D2 ML B2 MR'			45
D2 ML2 D2 B2 ML B2 ML' B2 ML2 D2 MR D2 MR' B2 ML			46
B2 MR2 B2 D2 MR D2 MR' D2 MR2 B2 ML B2 ML' D2 MR			47
B2 ML2 B2 D2 ML' D2 ML D2 ML2 B2 MR' B2 MR D2 ML'			48

Cube Layout – Double Midge Flip – DB Midges – 12/12

AlgorithmFinder4 - Microsoft Excel

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
1					32	33	34	35										32	33	34	35				
2					36	37	38	39										36	37	38	39				
3					40	41	42	43										40	41	42	43				
4					44	45	46	47										44	45	46	47				
5	48	49	50	51	0	1	2	3	16	17	18	19		48	49	50	51	0	1	2	3	16	17	18	19
6	52	53	54	55	4	5	6	7	20	21	22	23		52	53	54	55	4	5	6	7	20	21	22	23
7	56	57	58	59	8	9	10	11	24	25	26	27		56	57	58	59	8	9	10	11	24	25	26	27
8	60	61	62	63	12	13	14	15	28	29	30	31		60	61	62	63	12	13	14	15	28	29	30	31
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10					68	74	73	71	84	85	86	87						68	-1	-1	71	84	-1	-1	87
11					72	70	69	75	88	89	90	91						72	-1	-1	75	88	-1	-1	91
12					76	93	94	79	92	77	78	95						76	93	94	79	92	-1	-1	95

Algorithms: CubeLayout / 3DCube / Arrays / DataBase Algorithms / DataBase_CubeStates

Note that all centers of faces D and B have been set to -1 so that they can freely rotate.