MASTER

Virtuoses du RUBIK'S-CUB, essayez-vous à cette version géante pour AMSTRAD de luxe.

Patrick BERNARD

Mode d'emploi :
Tapez et sauvegardez à la suite ces deux programmes; le lancement du premier charge et lance automatiquement le second. Les règles sont incluses.

....listing 1....

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10 REM  ******************
20 REM  ** Simulation du **
30 REM  MASTER RUBIK'S CUBE
40 REM  Par Patrick BERNARD
50 REM  ******************
60 REM
70 MODE 1:CLS:INK 0,0:INK 1,
24:BORDER 0
90 REM
100 REM Presentation
110 REM Dessin
120 RESTORE 1020
130 DIM A(29)
140 FOR I=1 TO 22:READ A(I):
NEXT
150 FOR I=1 TO 22:READ X,Y:P
LOT X,Y
160 FOR J=1 TO A(I):READ X,Y
:DRAW X,Y
170 NEXT J,I
190 REM
200 REM Musique
210 ENV 1,3,5,1,1,0,11
220 ENV 2,3,5,1,1,0,18
230 ENV 3,3,5,1,1,0,24
240 ENV 4,3,5,1,1,0,28,5,-3,
1
250 ENT 1,3,1,1,6,-1,1,6,1,1
,6,-1,1,3,1,1
260 C=1
270 RESTORE 1310:FOR I=1 TO
28:READ A,B:SOUND C,A,0,0,B,
0:NEXT
280 RESTORE 1310:FOR I=1 TO
14:READ A,B:SOUND C,A,0,0,B,
0:NEXT
290 RESTORE 1330:FOR I=1 TO
14:READ A,B:SOUND C,A,0,0,B,
0:NEXT
295 REM
300 REM Routine LM (FILE)
310 DEF FN HEX(H$)=VAL("&"+L
EFT$(H$,2))
320 RESTORE 1410
330 ADDR=&69A0
340 MEMORY &699F
350 READ H$
360 IF H$="END" THEN 510
370 IF ASC(H$)<>ASC("@") THE
N 440
380 H$=RIGHT$(H$,LEN(H$)-1)
390 LB=FN HEX(H$):H$=RIGHT$(
H$,LEN(H$)-2)
400 HB=FN HEX(H$):H$=RIGHT$(
H$,LEN(H$)-2)
410 W=256*HB+LB-30000+&69A0
420 POKE ADDR,W-256*INT(W/25
6):ADDR=ADDR+1
430 POKE ADDR,INT(W/256):GOT
O 460
440 B=FN HEX(H$):H$=RIGHT$(H
$,LEN(H$)-2)
450 POKE ADDR,B
460 ADDR=ADDR+1:IF H$<>"" TH
EN 370
470 GOTO 350
490 REM
500 REM Routine LM (Sauvegar
de ecran)
510 RESTORE 1610
520 FOR I=1 TO 20
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530 READ A$
540 POKE &6B64+I,VAL("&"+A$)

550 NEXT
590 REM
600 REM Initialisation Coord
onnees+Couleur
610 DIM X(6,16),Y(6,16),C(6,
16)
620 RESTORE 1710
630 FOR I=1 TO 6:FOR J=1 TO
16
640 READ X,Y
650 X(I,J)=X:Y(I,J)=Y:C(I,J)
=I+1
660 NEXT J,I
690 REM
700 MODE 2:INK 0,13:INK 1,0:
BORDER 13
710 LOCATE 30,1:PRINT"MASTER
 RUBIK'S CUBE"
720 LOCATE 30,2:PRINT"______
______________"
725 PRINT
730 PRINT"  L'inventeur du '
MASTER' (ou 4x4),le professe
ur de physique hongrois,Erno
 RUBIK";
740 PRINT"voulait mettre en
tre les mains de ses etudia
nts un outil concret de p
ensee.Son objectif pedagogiq
ue fut atteint car le cube e
t le master sont les represe
n-tations de grands principe
s mathematiques.Mais, le suc
ces de ce cube est surtout";

750 PRINT"du aux fievres dec
lanchees dans le public.":PR
INT
760 PRINT"  Le but est tres
simple: il suffit de reconst
ituer, a partir d'un cube me
lange,l'uniformite des coule
urs sur les faces. Le hasard
 etant totalement inexistan
t,c'est un jeu de reflexion
qui vous occupera pendant le
s longues soirees d'hiver."
770 PRINT"  Le maniement est
 rendu tres simple grace aux
 rotations des faces et des
baguesdesignes par des lettr
esCAvant,Posterieur,Droite,G
auche,Haut,Bas,Couche,Face,E
?]Le sens de rotation positi
f est le sens des aiguilles
d'une montre. Pour tourner";
780 PRINT"dans l'autre sens,
 il suffit de mettre un '-'
 devant la rotation en que
stion.  EX: A-BC2-F1-PGD"
790 PRINT"Toutes ces rotatio
ns vous seront rememorees g
race a un appui sur la touch
e 'R'."
800 INPUT"Voulez vous partir
 d'un cube:      (1) fait
 (2) defait ";N
810 IF N<>1 AND N<>2 THEN LO
CATE 1,VPOS(#0)-1:GOTO 800
820 PRINT:PRINT"  Pendant le
 temps d'affichage le temps
n'est pas chronometre.    Al
ors ...
A vos marques ...    Prets .
..    Partez !!!"
830 LOCATE 28,25:PRINT"ENREG
ISTREMENT EN COURS";
970 CHAIN MERGE"!MASTER 1",,
DELETE 1-
980 END
990 REM
1000 REM Presentation
1010 REM DATA Dessin
1020 DATA 13,8,3,26,8,12,13,
6,31,16,18,8,4,13,4,13,8,10,
9,4,4,12
1030 DATA 165,282,165,337,18
0,337,197,292,210,337,227,33
7,227,282,217,282,217,327,20
2,282,192,282,175,327,175,28
2,165,282
1040 DATA 230,282,247,337,26
2,337,282,282,272,282,267,29
2,243,292,238,282,230,282
1050 DATA 246,302,255,328,26
4,302,246,302
1060 DATA 283,300,293,300,29
3,297,298,292,312,292,317,29
7,312,302,285,312,283,318,28
3,332,288,337,322,337,327,33
2,327,322,317,322,317,324,31
4,327,298,327,293,322,297,31
6,322,307,327,302,327,287,32
2,282,288,282,283,287,283,30
0
1070 DATA 350,282,350,327,33
0,327,330,337,379,337,379,32
7,361,327,361,282,350,282
1080 DATA 382,282,382,337,42
7,337,427,327,392,327,392,31
5,417,315,417,305,392,305,39
2,292,427,292,427,282,382,28
2
1090 DATA 430,282,430,337,47
0,337,475,332,475,312,470,30
7,475,302,475,282,465,282,46
5,298,460,305,440,305,440,28
2,430,282
1100 DATA 440,315,440,327,46
0,327,465,323,465,319,460,31
5,440,315
1110 DATA 145,150,170,190,19
5,225,220,247,235,255,245,25
5,255,245,260,225,257,212,24
2,195,225,187,202,182,215,17
5,227,164,242,160,242,150,23
0,152,220,160,193,178,179,18
2,184,190,200,190,215,194,24
0,204,250,220,247,237,240,24
5,230,243,207,227,177,187,15
5
1120 DATA 150,145,150
1130 DATA 255,195,265,195,25
7,165,262,157,270,162,280,19
5,290,195,282,162,287,157,29
5,157,291,150,282,150,275,15
5,268,150,250,150,245,162,25
5,195
1140 DATA 322,247,332,247,30
7,172,315,162,325,164,330,17
7,322,185,327,192,335,190,34
0,185,350,187,347,177,340,17
5,335,162,331,157,315,150,30
2,157,297,175,322,247
1150 DATA 357,195,367,195,36
0,162,365,158,377,160,372,15
0,354,150,348,156,357,195
1160 DATA 358,207,362,220,37
6,220,372,207,358,207
1170 DATA 377,150,405,247,41
6,247,397,182,415,195,430,19
5,402,172,410,162,422,159,42
0,150,405,155,393,170,388,15
0,377,150
1180 DATA 433,217,437,232,45
0,232,445,220,433,217
1190 DATA 427,150,431,158,44
7,158,457,165,453,178,450,17
5,440,175,452,195,462,195,45
8,185,466,165,458,152,447,15
0,427,150
1200 DATA 172,57,172,120,240
,120,240,105,202,105,202,72,
240,72,240,57,172,57
1210 DATA 248,57,248,120,272
,120,272,75,277,72,287,72,29
2,75,292,120,315,120,315,57,
248,57
1220 DATA 325,57,325,120,385
,120,390,115,390,95,382,90,3
90,85,390,62,385,57,325,57
1230 DATA 350,72,350,80,370,
80,370,72,350,72
1240 DATA 350,107,370,107,37
0,99,350,99,350,107
1250 DATA 400,57,400,120,465
,120,465,107,430,107,430,96,
457,96,457,82,430,82,430,72,
465,72,465,57,400,57
1290 REM
1300 REM DATA Musique
1310 DATA 80,1,89,1,95,1,80,
2,80,2,80,2,71,2,80,3,89,2,9
5,2,80,2,60,2,53,2,47,4
1320 DATA 47,1,47,1,47,1,80,
2,80,2,47,2,47,2,53,3,60,2,6
3,2,60,2,53,2,47,2,53,4
1330 DATA 80,1,80,1,80,1,47,
2,47,2,47,2,53,2,53,3,60,2,6
3,2,80,2,47,2,53,2,60,4
1390 REM
1400 REM DATA FILE
1410 DATA CDE1BB32@EC7647CDE
7BB32@ED76B8C8CD@6876C0ED73@
EE76CD11BC4704
1420 DATA 3E08CB3F10FC32@DC7
621@F27E22@F07621@F68622@F47
E21000022@E276
1430 DATA 22@E47622@E676CD09
BBDA@9076ED5B@F07621@E776010
A00EDB8
1440 DATA ED53@F076CD@687620
4FCD@E8752A@E27622@E6762A@E6
7622@DE76
1450 DATA 2A@F0762323235E235
61313ED53@E076CD@6D752A@E676
22@DE762A@F076
1460 DATA 2323235E23561B1BED
53@E076CD@6D752A@E676ED4B@DC
760922@E676
1470 DATA ED4B@E476A7ED4238B
C28BA11@DE762A@F07623010A00E
DB02B22@F076C9
1480 DATA 2A@D
C7622@EA76CD@3
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4762A@E876ED4B@DC76A7ED4222@
E476EB2A@F47E
1490 DATA 722B73E5210000ED4B
@DC76A7ED4222@EA76CD@34762A@
E876ED4B@DC76
1500 DATA 0922@E276EBE12B722
B732BED5B@E076722B732B22@F47
EC9ED5B@DE76
1510 DATA ED53@E8762A@E076ED
5B@E876CDEABB2A@E876ED4B@EA7
60922@E876545D
1520 DATA 018002A7ED42D02A@E
076CDF0BB473A@ED76B828D5C92A
@DE76018002AF
1530 DATA ED42301A2A@E076018
F01ED423O102A@E076ED5B@DE76C
DF0BB473A@ED76
1540 DATA B8C9FE01C92A@F47E1
1@F6867DBB20037CBAC83A@ED76C
DDEBB2A@F47E23
1550 DATA 5E2356ED53@E076234
E2346E5EB5059CDC0BBE1235E235
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6E52A@E076
1560 DATA CDF6BBE111@F6867DB
B20D97CBA20D53A@EC76CDDEBB2A
@EE76F9C90000
1570 DATA END
1590 REM
1600 REM Sauvegarde Ecran
1610 DATA 21,00,C0,11,7A,6B,
18,06,21,7A,6B,11,0,C0,01,00
,40,ED,B0,C9
1690 REM
1700 REM Coordonnees Facette
s
1710 DATA 50,160,80,150,110,
140,140,130,50,130,80,120,12
0,110,140,100,50,100,80,90,1
20,80,140,70,50,70,80,60,120
,50,140,40
1720 DATA 170,130,200,140,23
0,150,260,160,170,100,200,11
0,230,120,260,130,170,70,200
,80,230,90,260,100,170,40,20
0,50,230,60,260,70
1730 DATA 160,210,190,200,22
0,190,250,180,130,200,160,19
0,190,180,220,170,100,190,13
0,180,160,170,190,160,70,180
,100,170,130,160,160,150
1740 DATA 370,170,400,180,43
0,190,460,200,370,140,400,15
0,430,160,460,170,370,110,40
0,120,430,130,460,140,370,80
,400,90,430,100,460,110
1750 DATA 490,200,520,190,56
0,180,580,170,490,170,520,16
0,560,150,580,140,490,140,52
0,130,560,120,580,110,490,11
0,520,100,560,90,580,80
1760 DATA 390,60,420,70,450,
80,480,90,420,50,450,60,480,
70,510,80,450,40,480,50,510,
60,540,70,480,30,510,40,540,
50,570,60
```

....listing 2....

```
10 REM  ******************
20 REM  ** Simulation du **
30 REM  MASTER RUBIK'S CUBE
40 REM  Par Patrick BERNARD
50 REM  ******************
60 START=&69A0:T=START-30000
70 XA=&76DE+T:YA=&76E0+T
80 PLOT 800,800,1
90 REM PRESENTATION
100 MODE 0:CLS:INK 0,13:INK
1,0:BORDER 13:INK 2,26:INK 3
,24:INK 4,15:INK 5,2:INK 6,2
1:INK 7,6
110 WINDOW #1,1,20,1,1:PRINT
#1,"MASTER RUBIK'S CUBE"
120 ORIGIN 0,144,0,640,144,3
84
130 WINDOW #2,1,20,17,17:LOC
ATE #2,1,1:PRINT#2,"00H00'00
"+CHR$(34)
140 WINDOW #3,1,20,24,25:PRI
NT#3,"TOUCHES UTILISABLES:";
:PRINT#3,"APDGBHC1C2F1F2E1E2
-R";
150 WINDOW 1,20,19,23
160 IF N=1 GOTO 180
170 GOSUB 5200
180 GOSUB 4000
190 GOSUB 4500
200 GOSUB 4000
210 IF N1 THEN AFTER 500 GOS
UB 7500
220 GOTO 190
230 END
990 REM A
1000 K=2:GOSUB 3400
1010 D1=C(1,4):D2=C(1,8):D3=
C(1,12):D4=C(1,16)
1020 C(1,4)=C(6,13):C(1,8)=C
(6,9):C(1,12)=C(6,5):C(1,16)
=C(6,1)
1030 C(6,13)=C(4,13):C(6,9)=
C(4,9):C(6,5)=C(4,5):C(6,1)=
C(4,1)
1040 C(4,13)=C(3,4):C(4,9)=C
(3,8):C(4,5)=C(3,12):C(4,1)=
C(3,16)
1050 C(3,4)=D1:C(3,8)=D2:C(3
,12)=D3:C(3,16)=D4
1060 RETURN
1090 REM -A
1100 K=2:GOSUB 3500
1110 D1=C(1,4):D2=C(1,8):D3=
C(1,12):D4=C(1,16)
1120 C(1,16)=C(3,16):C(1,12)
=C(3,12):C(1,8)=C(3,8):C(1,4
)=C(3,4)
1130 C(3,16)=C(4,1):C(3,12)=
C(4,5):C(3,8)=C(4,9):C(3,4)=
C(4,13)
1140 C(4,1)=C(6,1):C(4,5)=C(
6,5):C(4,9)=C(6,9):C(4,13)=C
(6,13)
1150 C(6,1)=D4:C(6,5)=D3:C(6
,9)=D2:C(6,13)=D1
1160 RETURN
1190 REM D
1200 K=4:GOSUB 3400
1210 D1=C(2,4):D2=C(2,8):D3=
C(2,12):D4=C(2,16)
1220 C(2,4)=C(6,1):C(2,8)=C(
6,2):C(2,12)=C(6,3):C(2,16)=
C(6,4)
1230 C(6,1)=C(5,13):C(6,2)=C
(5,9):C(6,3)=C(5,5):C(6,4)=C
(5,1)
1240 C(5,13)=C(3,1):C(5,9)=C
(3,2):C(5,5)=C(3,3):C(5,1)=C
(3,4)
1250 C(3,1)=D1:C(3,2)=D2:C(3
,3)=D3:C(3,4)=D4
1260 RETURN
1290 REM -D
1300 K=4:GOSUB 3500
1310 D1=C(2,4):D2=C(2,8):D3=
C(2,12):D4=C(2,16)
1320 C(2,16)=C(3,4):C(2,12)=
C(3,3):C(2,8)=C(3,2):C(2,4)=
C(3,1)
1330 C(3,4)=C(5,1):C(3,3)=C(
5,5):C(3,2)=C(5,9):C(3,1)=C(
5,13)
1340 C(5,1)=C(6,4):C(5,5)=C(
6,3):C(5,9)=C(6,2):C(5,13)=C
(6,1)
1350 C(6,4)=D4:C(6,3)=D3:C(6
,2)=D2:C(6,1)=D1
1360 RETURN
1390 REM G
1400 K=1:GOSUB 3400
1410 D1=C(5,4):D2=C(5,8):D3=
C(5,12):D4=C(5,16)
1420 C(5,4)=C(6,16):C(5,8)=C
(6,15):C(5,12)=C(6,14):C(5,1
6)=C(6,13)
1430 C(6,16)=C(2,13):C(6,15)
=C(2,9):C(6,14)=C(2,5):C(6,1
3)=C(2,1)
1440 C(2,13)=C(3,15):C(2,9)=
C(3,15):C(2,5)=C(3,14):C(2,1
)=C(3,13)
1450 C(3,16)=D1:C(3,15)=D2:C
(3,14)=D3:C(3,13)=D4
1460 RETURN
1490 REM -G
1500 K=1:GOSUB 3500
1510 D1=C(5,4):D2=C(5,8):D3=
C(5,12):D4=C(5,16)
1520 C(5,16)=C(3,13):C(5,12)
=C(3,14):C(5,8)=C(3,15):C(5,
4)=C(3,16)
1530 C(3,13)=C(2,1):C(3,14)=
C(2,5):C(3,15)=C(2,9):C(3,16
)=C(2,13)
1540 C(2,1)=C(6,13):C(2,5)=C
(6,14):C(2,9)=C(6,15):C(2,13
)=C(6,16)
1550 C(6,13)=D4:C(6,14)=D3:C
(6,15)=D2:C(6,16)=D1
1560 RETURN
1590 REM P
1600 K=5:GOSUB 3400
1610 D1=C(4,4):D2=C(4,8):D3=
C(4,12):D4=C(4,16)
1620 C(4,4)=C(6,4):C(4,8)=C(
6,8):C(4,12)=C(6,12):C(4,16)
=C(6,16)
1630 C(6,4)=C(1,13):C(6,8)=C
(1,9):C(6,12)=C(1,5):C(6,16)
=C(1,1)
1640 C(1,13)=C(3,13):C(1,9)=
C(3,9):C(1,5)=C(3,5):C(1,1)=
C(3,1)
1650 C(3,13)=D1:C(3,9)=D2:C(
3,5)=D3:C(3,1)=D4
1660 RETURN
1690 REM -P
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```
1700 K=5:GOSUB 3500
1710 D1=C(4,4):D2=C(4,8):D3=
C(4,12):D4=C(4,16)
1720 C(4,16)=C(3,1):C(4,12)=
C(3,5):C(4,8)=C(3,9):C(4,4)=
C(3,13)
1730 C(3,1)=C(1,1):C(3,5)=C(
1,5):C(3,9)=C(1,9):C(3,13)=C
(1,13)
1740 C(1,1)=C(6,16):C(1,5)=C
(6,12):C(1,9)=C(6,8):C(1,13)
=C(6,4)
1750 C(6,16)=D4:C(6,12)=D3:C
(6,8)=D2:C(6,4)=D1
1760 RETURN
1790 REM H
1800 K=3:GOSUB 3400
1810 D1=C(5,1):D2=C(5,2):D3=
C(5,3):D4=C(5,4)
1820 C(5,1)=C(1,1):C(5,2)=C(
1,2):C(5,3)=C(1,3):C(5,4)=C(
1,4)
1830 C(1,1)=C(2,1):C(1,2)=C(
2,2):C(1,3)=C(2,3):C(1,4)=C(
2,4)
1840 C(2,1)=C(4,1):C(2,2)=C(
4,2):C(2,3)=C(4,3):C(2,4)=C(
4,4)
1850 C(4,1)=D1:C(4,2)=D2:C(4
,3)=D3:C(4,4)=D4
1860 RETURN
1890 REM -H
1900 K=3:GOSUB 3500
1910 D1=C(5,1):D2=C(5,2):D3=
C(5,3):D4=C(5,4)
1920 C(5,1)=C(4,1):C(5,2)=C(
4,2):C(5,3)=C(4,3):C(5,4)=C(
4,4)
1930 C(4,1)=C(2,1):C(4,2)=C(
2,2):C(4,3)=C(2,3):C(4,4)=C(
2,4)
1940 C(2,1)=C(1,1):C(2,2)=C(
1,2):C(2,3)=C(1,3):C(2,4)=C(
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1,4)
1950 C(1,1)=D1:C(1,2)=D2:C(1
,3)=D3:C(1,4)=D4
1960 RETURN
1990 REM B
2000 K=6:GOSUB 3400
2010 D1=C(2,16):D2=C(2,15):D
3=C(2,14):D4=C(2,13)
2020 C(2,16)=C(1,16):C(2,15)
=C(1,15):C(2,14)=C(1,14):C(2
,13)=C(1,13)
2030 C(1,16)=C(5,16):C(1,15)
=C(5,15):C(1,14)=C(5,14):C(1
,13)=C(5,13)
2040 C(5,16)=C(4,16):C(5,15)
=C(4,15):C(5,14)=C(4,14):C(5
,13)=C(4,13)
2050 C(4,16)=D1:C(4,15)=D2:C
(4,14)=D3:C(4,13)=D4
2060 RETURN
2090 REM -B
2100 K=6:GOSUB 3500
2110 D1=C(2,16):D2=C(2,15):D
3=C(2,14):D4=C(2,13)
2120 C(2,16)=C(4,16):C(2,15)
=C(4,15):C(2,14)=C(4,14):C(2
,13)=C(4,13)
2130 C(4,16)=C(5,16):C(4,15)
=C(5,15):C(4,14)=C(5,14):C(4
,13)=C(5,13)
2140 C(5,16)=C(1,16):C(5,15)
=C(1,15):C(5,14)=C(1,14):C(5
,13)=C(1,13)
2150 C(1,16)=D1:C(1,15)=D2:C
(1,14)=D3:C(1,13)=D4
2160 RETURN
2190 REM C1
2200 D1=C(1,5):D2=C(1,6):D3=
C(1,7):D4=C(1,8)
2210 C(1,5)=C(2,5):C(1,6)=C(
2,6):C(1,7)=C(2,7):C(1,8)=C(
2,8)
2220 C(2,5)=C(4,5):C(2,6)=C(
4,6):C(2,7)=C(4,7):C(2,8)=C(
4,8)
2230 C(4,5)=C(5,5):C(4,6)=C(
5,6):C(4,7)=C(5,7):C(4,8)=C(
5,8)
2240 C(5,5)=D1:C(5,6)=D2:C(5
,7)=D3:C(5,8)=D4
2250 RETURN
2290 REM -C1
2300 D1=C(1,5):D2=C(1,6):D3=
C(1,7):D4=C(1,8)
2310 C(1,5)=C(5,5):C(1,6)=C(
5,6):C(1,7)=C(5,7):C(1,8)=C(
5,8)
2320 C(5,5)=C(4,5):C(5,6)=C(
4,6):C(5,7)=C(4,7):C(5,8)=C(
4,8)
2330 C(4,5)=C(2,5):C(4,6)=C(
2,6):C(4,7)=C(2,7):C(4,8)=C(
2,8)
2340 C(2,5)=D1:C(2,6)=D2:C(2
,7)=D3:C(2,8)=D4
2350 RETURN
2390 REM C2
2400 D1=C(1,9):D2=C(1,10):D3
=C(1,11):D4=C(1,12)
2410 C(1,9)=C(2,9):C(1,10)=C
(2,10):C(1,11)=C(2,11):C(1,1
2)=C(2,12)
2420 C(2,9)=C(4,9):C(2,10)=C
(4,10):C(2,11)=C(4,11):C(2,1
2)=C(4,12)
2430 C(4,9)=C(5,9):C(4,10)=C
(5,10):C(4,11)=C(5,11):C(4,1
2)=C(5,12)
2440 C(5,9)=D1:C(5,10)=D2:C(
5,11)=D3:C(5,12)=D4
2450 RETURN
2490 REM -C2
2500 D1=C(1,9):D2=C(1,10):D3
=C(1,11):D4=C(1,12)
2510 C(1,9)=C(5,9):C(1,10)=C
(5,10):C(1,11)=C(5,11):C(1,1
2)=C(5,12)
2520 C(5,9)=C(4,9):C(5,10)=C
(4,10):C(5,11)=C(4,11):C(5,1
2)=C(4,12)
2530 C(4,9)=C(2,9):C(4,10)=C
(2,10):C(4,11)=C(2,11):C(4,1
2)=C(2,12)
2540 C(2,9)=D1:C(2,10)=D2:C(
2,11)=D3:C(2,12)=D4
2550 RETURN
2590 REM E1
2600 D1=C(1,3):D2=C(1,7):D3=
C(1,11):D4=C(1,15)
2610 C(1,3)=C(6,14):C(1,7)=C
(6,10):C(1,11)=C(6,6):C(1,15
)=C(6,2)
2620 C(6,14)=C(4,14):C(6,10)
=C(4,10):C(6,6)=C(4,6):C(6,2
)=C(4,2)
2630 C(4,14)=C(3,3):C(4,10)=
C(3,7):C(4,6)=C(3,11):C(4,2)
=C(3,15)
2640 C(3,3)=D1:C(3,7)=D2:C(3
,11)=D3:C(3,15)=D4
2650 RETURN
2690 REM -E1
2700 D1=C(1,3):D2=C(1,7):D3=
C(1,11):D4=C(1,15)
2710 C(1,3)=C(3,3):C(1,7)=C(
3,7):C(1,11)=C(3,11):C(1,15)
=C(3,15)
2720 C(3,3)=C(4,14):C(3,7)=C
(4,10):C(3,11)=C(4,6):C(3,15
)=C(4,2)
2730 C(4,14)=C(6,14):C(4,10)
=C(6,10):C(4,6)=C(6,6):C(4,2
)=C(6,2)
2740 C(6,14)=D1:C(6,10)=D2:C
(6,6)=D3:C(6,2)=D4
2750 RETURN
2790 REM E2
2800 D1=C(1,2):D2=C(1,6):D3=
C(1,10):D4=C(1,14)
2810 C(1,2)=C(6,15):C(1,6)=C
(6,11):C(1,10)=C(6,7):C(1,14
)=C(6,3)
2820 C(6,15)=C(4,15):C(6,11)
=C(4,11):C(6,7)=C(4,7):C(6,3
)=C(4,3)
2830 C(4,15)=C(3,2):C(4,11)=
C(3,6):C(4,7)=C(3,10):C(4,3)
=C(3,14)
2840 C(3,2)=D1:C(3,6)=D2:C(3
,10)=D3:C(3,14)=D4
2850 RETURN
2890 REM -E2
2900 D1=C(1,2):D2=C(1,6):D3=
C(1,10):D4=C(1,14)
2910 C(1,2)=C(3,2):C(1,6)=C(
3,6):C(1,10)=C(3,10):C(1,14)
=C(3,14)
2920 C(3,2)=C(4,15):C(3,6)=C
(4,11):C(3,10)=C(4,7):C(3,14
)=C(4,3)
2930 C(4,15)=C(6,15):C(4,11)
=C(6,11):C(4,7)=C(6,7):C(4,3
)=C(6,3)
2940 C(6,15)=D1:C(6,11)=D2:C
(6,7)=D3:C(6,3)=D4
2950 RETURN
2990 REM F1
3000 D1=C(2,2):D2=C(2,6):D3=
C(2,10):D4=C(2,14)
3010 C(2,2)=C(3,9):C(2,6)=C(
3,10):C(2,10)=C(3,11):C(2,14
)=C(3,12)
3020 C(3,9)=C(5,15):C(3,10)=
C(5,11):C(3,11)=C(5,7):C(3,1
2)=C(5,3)
3030 C(5,15)=C(6,9):C(5,11)=
C(6,10):C(5,7)=C(6,11):C(5,3
)=C(6,12)
3040 C(6,9)=D1:C(6,10)=D2:C(
6,11)=D3:C(6,12)=D4
3050 RETURN
3090 REM -F1
3100 D1=C(2,2)
:D2=C(2,6):D3=
```

```
C(2,10):D4=C(2,14)
3110 C(2,2)=C(6,9):C(2,6)=C(
6,10):C(2,10)=C(6,11):C(2,14
)=C(6,12)
3120 C(6,9)=C(5,15):C(6,10)=
C(5,11):C(6,11)=C(5,7):C(6,1
2)=C(5,3)
3130 C(5,15)=C(3,9):C(5,11)=
C(3,10):C(5,7)=C(3,11):C(5,3
)=C(3,12)
3140 C(3,9)=D1:C(3,10)=D2:C(
3,11)=D3:C(3,12)=D4
3150 RETURN
3190 REM F2
3200 D1=C(2,3):D2=C(2,7):D3=
C(2,11):D4=C(2,15)
3210 C(2,3)=C(3,5):C(2,7)=C(
3,6):C(2,11)=C(3,7):C(2,15)=
C(3,8)
3220 C(3,5)=C(5,14):C(3,6)=C
(5,10):C(3,7)=C(5,6):C(3,8)=
C(5,2)
3230 C(5,14)=C(6,5):C(5,10)=
C(6,6):C(5,6)=C(6,7):C(5,2)=
C(6,8)
3240 C(6,5)=D1:C(6,6)=D2:C(6
,7)=D3:C(6,8)=D4
3250 RETURN
3290 REM -F2
3300 D1=C(2,3):D2=C(2,7):D3=
C(2,11):D4=C(2,15)
3310 C(2,3)=C(6,5):C(2,7)=C(
6,6):C(2,11)=C(6,7):C(2,15)=
C(6,8)
3320 C(6,5)=C(5,14):C(6,6)=C
(5,10):C(6,7)=C(5,6):C(6,8)=
C(5,2)
3330 C(5,14)=C(3,5):C(5,10)=
C(3,6):C(5,6)=C(3,7):C(5,2)=
C(3,8)
3340 C(3,5)=D1:C(3,6)=D2:C(3
,7)=D3:C(3,8)=D4
3350 RETURN
3390 REM
3400 D1=C(K,1):D2=C(K,2):D3=
C(K,3):D4=C(K,4):D5=C(K,6)
3410 C(K,1)=C(K,13):C(K,2)=C
(K,9):C(K,3)=C(K,5)
3420 C(K,5)=C(K,14):C(K,9)=C
(K,15):C(K,13)=C(K,16)
3430 C(K,14)=C(K,12):C(K,15)
=C(K,8):C(K,16)=D4
3440 C(K,12)=D3:C(K,8)=D2:C(
K,4)=D1
3450 C(K,6)=C(K,10):C(K,10)=
C(K,11):C(K,11)=C(K,7):C(K,7
)=D5
3460 RETURN
3490 REM
3500 D1=C(K,1):D2=C(K,2):D3=
C(K,3):D4=C(K,4):D5=C(K,6)
3510 C(K,2)=C(K,8):C(K,3)=C(
K,12):C(K,4)=C(K,16)
3520 C(K,8)=C(K,15):C(K,12)=
C(K,14):C(K,16)=C(K,13)
3530 C(K,15)=C(K,9):C(K,14)=
C(K,5):C(K,13)=D1
3540 C(K,9)=D2:C(K,5)=D3:C(K
,1)=D4
3550 C(K,6)=C(K,7):C(K,7)=C(
K,11):C(K,11)=C(K,10):C(K,10
)=D5
3560 RETURN
3990 REM DESSIN CUBE+FILE
4000 RESTORE 10000
4010 PLOT 800,800,1:CLG
4020 FOR I=1 TO 24:READ A(I)
:NEXT
4030 FOR I=1 TO 24:READ X,Y:
PLOT X,Y
4040 FOR J=1 TO A(I):READ X,
Y:DRAW X,Y
4050 NEXT J,I
4060 FOR I=1 TO 6:FOR J=1 TO
16
4070 C=C(I,J):X=X(I,J):Y=Y(I
,J)
4080 PLOT 800,800,C
4090 POKE XA,X-256*INT(X/256
):POKE XA+1,INT(X/256)
4100 POKE YA,Y-256*INT(Y/256
):POKE YA+1,INT(Y/256)
4110 CALL START
4120 NEXT J,I
4130 IF N=2 THEN GOSUB 7000
4140 RETURN
4490 REM CHOIX ROTATIONS
4500 EVERY 50,3 GOSUB 5500
4510 CLS
4520 R$=""
4530 PRINT"ROTATIONS: ";:O$=
""
4540 WHILE O$<>CHR$(13)
4550 IF N2 THEN O$=CHR$(13):
N2=0:GOTO 4570
4560 O$=INKEY$:O$=UPPER$(O$)
4570 IF O$="" GOTO 4720
4580 IF O$="R" THEN X2=POS(#
0):Y2=VPOS(#0):GOSUB 6000:LO
CATE X2,Y2:GOTO 4720
4590 O1$="APDGHBCFE12-"+CHR$
(&7F)
4600 IF INSTR(1,O1$,O$)=0 GO
TO 4720
4610 PRINT O$;
4620 IF ASC(O$)=&7F GOTO 465
0
4630 R$=R$+O$
4640 GOTO 4720
4650 IF LEN(R$)=0 THEN LOCAT
E 12,1:PRINT" ";:LOCATE 12,1
```

```
:GOTO 4720
4660 R$=LEFT$(R$,LEN(R$)-1)
4670 IF POS(#0)=1 GOTO 4700
4680 IF POS(#0)=2 GOTO 4710
4690 LOCATE POS(#0)-2,VPOS(#
0):PRINT"  ";:LOCATE POS(#0)
-2,VPOS(#0):GOTO 4720
4700 LOCATE 19,VPOS(#0)-1:PR
INT"  ";:LOCATE 19,VPOS(#0)-
1:GOTO 4720
4710 LOCATE 20,VPOS(#0)-1:PR
INT" ";:PRINT" ";:LOCATE 20,
VPOS(#0)-1
4720 WEND
4730 P$=R$
4740 WHILE R$<>""
4750 S$=LEFT$(R$,1)
4760 IF S$="-" THEN R=1:R$=R
IGHT$(R$,LEN(R$)-1):S$=LEFT$
(R$,1)
4770 IF S$="C" OR S$="E" OR
S$="F" GOTO 4870
4780 IF S$="A" THEN R=R+1:GO
TO 4840
4790 IF S$="D" THEN R=R+3:GO
TO 4840
4800 IF S$="G" THEN R=R+5:GO
TO 4840
4810 IF S$="P" THEN R=R+7:GO
TO 4840
4820 IF S$="H" THEN R=R+9:GO
TO 4840
4830 IF S$="B" THEN R=R+11
4840 R$=RIGHT$(R$,LEN(R$)-1)
4850 ON R GOSUB 1000,1100,12
00,1300,1400,1500,1600,1700,
1800,1900,2000,2100
4860 GOTO 4960
4870 S$=MID$(R$,2,1)
4880 IF S$="1" GOTO 4900
4890 IF S$="2" THEN R=R+6
4900 S$=LEFT$(R$,1)
4910 IF S$="C" THEN R=R+1:GO
TO 4940
4920 IF S$="E" THEN R=R+3:GO
TO 4940
4930 IF S$="F" THEN R=R+5
4940 R$=RIGHT$(R$,LEN(R$)-2)
4950 ON R GOSUB 2200,2300,26
00,2700,3000,3100,2400,2500,
2800,2900,3200,3300
4960 R=0
4970 WEND
4980 P$=P$+"  "
4990 P=LEN(P$):P1=LEN(P$(S))
5000 IF P+P1<255 THEN P$(S)=
P$(S)+P$:GOTO 5050
5010 P2=P+P1-255
5020 P$(S)=P$(S)+LEFT$(P$,LE
N(P$)-P2)
5030 P$(S+1)=RIGHT$(P$,P2)
5040 S=S+1
5050 W=REMAIN(3)
5060 RETURN
5190 REM MELANGE DU CUBE (70
 ROTATIONS)
5200 RANDOMIZE TIME
5210 FOR I=1 TO 70
5220 A=INT(RND(1)*24)+1
5230 ON A GOSUB 1000,1100,12
00,1300,1400,1500,1600,1700,
1800,1900,2000,2100,2200,230
0,2400,2500,2600,2700,2800,2
900,3000,3100,3200,3300
5240 NEXT I
5250 RETURN
5490 REM CHRONOMETRE
5500 E$="000102030405060708
9"
5510 F=F+1
5520 IF F=60 THEN F=0:G=G+1:
G1=0 ELSE G1=1
5530 IF 0 GOTO 5560
5540 LOCATE #2,7,1
5550 IF F<10 THEN F$=MID$(E$
,2*F+1,2):PRINT#2,F$ ELSE PR
INT#2,USING "##";F
5560 IF G1 GOTO 5640
5570 IF G=60 THEN G=0:H=H+1:
H1=0 ELSE H1=1
5580 IF 0 GOTO 5640
5590 LOCATE #2,4,1
5600 IF G<10 THEN G$=MID$(E$
,2*G+1,2):PRINT#2,G$ ELSE PR
INT#2,USING "##";G
5610 IF H1 GOTO 5640
```

```
5620 LOCATE #2,1,1
5630 IF H<10 THEN H$=MID$(E$
,2*H+1,2):PRINT#2,H$ ELSE PR
INT#2,USING "##";H
5640 RETURN
5990 REM ECRAN RENSEIGNEMENT
S
6000 CALL &6B65
6010 MODE 2

6020 WINDOW#2,35,50,1,1:PRIN
T#2,"00H00'00"+CHR$(34)
6030 LOCATE 1,1:PRINT"
   "
6040 WINDOW 1,80,4,13
6050 WINDOW#1,4,30,2,2:PRINT
#1,"Coups executes :";
6060 IF H<10 THEN LOCATE#2,2
,1:PRINT#2,USING"#";H ELSE L
OCATE#2,1,1:PRINT#2,USING"##
";H
6070 IF G<10 THEN LOCATE#2,5
,1:PRINT#2,USING"#";G ELSE L
OCATE#2,4,1:PRINT#2,USING"##
";G
6080 WINDOW#3,1,80,25,25:PRI
NT#3,"      Pour revenir au c
ube appuyer sur <SPACE>   Po
ur avoir le menu sur 'M'";
6090 FOR I=0 TO S
6100 PRINT P$(S);
6110 NEXT I
6120 ORIGIN 0,20,0,639,182,2
0
6130 PLOT 0,0,1:DRAW 639,0:D
RAW 639,160:DRAW 0,160:DRAW
0,0
6140 TAG
6150 PLOT 32,128:PRINT" Sens
 positif =";:PLOT 8,112:PRIN
T"(Pour les 6 faces)";
6160 PLOT 190,100:DRAWR -10,
0:DRAWR 0,32:DRAWR 25,0:DRAW
R 0,-20:DRAWR -4,8:MOVER 4,-
8:DRAWR 4,8
6170 PLOT 32,64:PRINT" Pour
les bagues (C,F,E)";:PLOT 8,
48:PRINT"Sens + respectif de
 (H,G,A)";
6180 PLOT 400,24:DRAWR -64,2
4:DRAWR 0,64:DRAWR 64,-24:DR
AWR 0,-64:DRAWR 64,24:DRAWR
0,64:DRAWR -64,24:DRAWR -64,
-24:MOVER 64,-24:DRAWR 64,24
6190 PLOT 560,24:DRAWR -64,2
4:DRAWR 0,64:DRAWR 64,24:DRA
WR 64,-24:DRAWR 0,-64:DRAWR
-64,-24:MOVER -64,24:DRAWR 6
4,24:DRAWR 64,-24:MOVER -64,
24:DRAWR 0,64
6200 PLOT 396,116:PRINT"H";:
PLOT 364,72:PRINT"G";:PLOT 4
28,72:PRINT"A";
6210 PLOT 556,52:PRINT"B";:P
LOT 524,96:PRINT"D";:PLOT 58
8,96:PRINT"P";
6220 PLOT 332,72:DRAWR -16,0
:PLOT 332,88:DRAWR -16,0
6230 PLOT 298,84:PRINT"C2";:
PLOT 298,100:PRINT"C1";
6240 PLOT 360,36:DRAWR 0,-12
:PLOT 372,30:DRAWR 0,-12
6250 PLOT 348,22:PRINT"E2";:
PLOT 368,16:PRINT"E1";
6260 PLOT 424,30:DRAWR 0,-12
:PLOT 440,36:DRAWR 0,-12
6270 PLOT 412,16:PRINT"F1";:
PLOT 436,22:PRINT"F2";
6280 IF N3 THEN FOR I=1 TO 1
00:NEXT:N3=0:GOTO 6500
6290 R1$=INKEY$:R2$=UPPER$(R
1$):IF R2$<>" " AND R2$<>"M"
 GOTO 6290
6300 IF R2$="M" THEN GOTO 65
00
6310 MODE 0
6320 WINDOW#1,1,20,1,1
6330 WINDOW#3,1,20,24,25
6340 ORIGIN 0,144,0,640,144,
384
6350 WINDOW #2,1,20,17,17:LO
CATE #2,1,1
6360 WINDOW 1,20,19,23
6370 CALL &6B6D
6380 IF H<10 THEN LOCATE#2,2
,1:PRINT#2,USING"#";H ELSE L
OCATE#2,1,1:PRINT#2,USING"##
";H
6390 IF G<10 THEN LOCATE#2,5
,1:PRINT#2,USING"#";G ELSE L
```

```
OCATE#2,4,1:PRINT#2,USING"##
";G
6400 RETURN
6490 REM ECRAN MENU
6500 MODE 1:O=1:PRINT"
          "
6510 INK 1,24:INK 0,0:BORDER
 0
6520 LOCATE 18,2:PRINT"MENU"
:LOCATE 18,3:PRINT"____"
6530 LOCATE 9,25:PRINT"Quel
est votre choix ? ";
6540 LOCATE 5,6:PRINT"OPTION
S:"
6550 LOCATE 2,9:PRINT"( 1 )
  Recommencer avec un cube f
ait"
6560 LOCATE 2,12:PRINT"( 2 )
   Recommencer avec un cube
defait"
6570 LOCATE 2,15:PRINT"( 3 )
   Continuer le meme cube"
6580 LOCATE 2,18:PRINT"( 4 )
   Arreter"
6590 D$=UPPER$(INKEY$):D=VAL
(D$)
6600 IF D>4 OR D<1 GOTO 6590
 ELSE LOCATE 32,25:PRINT D;
6610 ON D GOTO 6620,6710,677
0,6790
6620 FOR I=1 TO 6
6630 FOR J=1 TO 16
6640 C(I,J)=I+1
6650 NEXT J,I
6660 F=0:G=0:H=0:N=1
6670 FOR I=0 TO S
6680 P$(I)=""
6690 NEXT I
6700 N2=1:GOTO 6770
6710 GOSUB 5200
6720 F=0:G=0:H=0:N=2
6730 FOR I=1 TO S
6740 P$(I)=""
6750 NEXT I
6760 N2=1:GOTO 6770
6770 INK 0,13:INK 1,0:BORDER
 13
6780 O=0:GOTO 6010
6790 CLS:END
6990 REM VERIFICATION DU CUB
E
7000 I=1:J=1
7010 C=C(I,J)
7020 J=J+1:IF J=17 THEN J=2:
I=I+1
7030 IF I<7 THEN C=C(I,J-1)
ELSE 7060
7040 IF C(I,J)<>C THEN N1=0:
RETURN
7050 GOTO 7020
7060 CLS:PRINT"          BRAVO
!!"
7070 PRINT"  Vous avez refai
t"
7080 PRINT"      le cube en"
7090 PRINT"         H  '  "+C
HR$(34);
7100 LOCATE 7,4:IF H<10 THEN
 PRINT"0";:PRINT USING"#";H
ELSE PRINT USING"##";H
7110 LOCATE 10,4:IF G<10 THE
N PRINT"0";:PRINT USING"#";G
 ELSE PRINT USING"##";G
7120 LOCATE 13,4:IF F<10 THE
N PRINT"0";:PRINT USING"#";F
 ELSE PRINT USING"##";F
7130 N1=1
7140 RETURN
7490 REM
7500 N3=1:GOSUB 6000
7510 RETURN
9990 REM COORDONNEES POUR DE
SSIN CUBE
10000 DATA 4,1,8,1,2,2,2,2,2
,2,2,2,2,8,1,2,2,2,2,2,2,2,2
,2
10010 DATA 0,2,639,2,639,238
,0,238,0,2,320,2,320,238,160
,15,280,60,280,180,160,225,4
0,180,40,60,160,15,160,135,4
0,180,160,135,280,180,40,90,
160,45,280,90,40,120,160,75,
280,120,40,150,160,105,280,1
50,70,49,70,169,190,213,100,
38,100,158,220,202
10020 DATA 130,27,130,147,25
0,191,190,27,190,147,70,191,
220,38,220,158,100,202,250,4
9,250,169,130,213,480,225,60
0,180,600,60,480,15,360,60,3
60,180,480,225,480,105,360,6
0,480,105,600,60,360,90,480,
135,600,90,360,120,480,165,6
00,120,360,150,480,195,600,1
50
10030 DATA 390,191,390,71,51
0,27,420,202,420,82,540,38,4
50,213,450,93,570,49,510,213
,510,93,390,49,540,202,540,8
2,420,38,570,191,570,71,450,
27
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