3D-Processor

```
100 '
110 ' 3 D - P R O C E S S O R  1 . 3
120 '
130 ' Autor: O.Welsch, Am Reckberg, 5489
 Nuerburg
140 ' Stand: Maerz 1986
150 '
160 '
170 IF HIMEM>36999 THEN MEMORY 36999
180 DEFINT a-z:DEFREAL s
190 RESTORE
200 DIM psum(31)
210 sum=0
220 FOR lin=1 TO 31
230   READ psum(lin)
240   sum=sum+psum(lin)
250 NEXT
260 IF sum<>224595 THEN PRINT"Error in c
hecksums" : PRINT"*ERROR*" : END
270 sum=0 : count=0 : lin=0 : er=0
280 FOR adr=UNT(37000) TO UNT(38975)
290   READ byte$
300   byte=VAL("&"+byte$)
310   sum=sum+byte
```

```
320    POKE adr,byte
330    count=count+1
340    IF count=64 THEN GOSUB 420 : sum=0
 : count=0
350 NEXT
360 GOSUB 420
370 IF er THEN PRINT"*ERROR*" : END
380 SAVE"3d-proc.bin",b,37000,1980,37000
390 PRINT"Link: 'CALL 37000'"
400 END
410 '
420 ' PROCEDURE checksum
430    lin=lin+1
440    IF sum=psum(lin) THEN 470 ' EXIT(c
hecksum)
450    er=-1   ' Error-Flag setzen
460    PRINT"DATA error between";1000+(li
n-1)*4;"and";1000+(lin-1)*4+3
470 RETURN '(checksum)
480 '
490 '
500 ' Checksum-datas
510 DATA 8375,6023,6376,7727,9690,7608,6
284,8826
520 DATA 9857,6925,8907,9351,7978,7340,1
0068,7791
530 DATA 8103,9815,7555,6096,12922,8822,
6291,3729
540 DATA 4401,4709,4390,4429,4834,4660,4
713
550 '
560 '
1000 DATA 21,88,90,36,C9,01,9D,90,21,99,
90,CD,D1,BC,C3,5E
1001 DATA 96,00,00,00,00,C6,90,C3,86,93,
C3,3A,93,C3,2A,91
1002 DATA C3,64,91,C3,0E,91,C3,2A,92,C3,
73,92,C3,86,93,C3
1003 DATA 3A,93,C3,2A,91,C3,64,91,C3,21,
91,C3,5E,96,C3,C4
1004 DATA CD,DA,50,45,52,53,50,45,43,54,
49,56,C5,54,52,41
1005 DATA 4E,53,46,45,D2,43,45,4E,54,52,
C5,43,41,4C,43,55
1006 DATA 4C,41,54,C5,44,49,53,50,4C,41,
D9,4D,4F,56,C5,5A
1007 DATA 4F,4F,CD,4E,4F,2E,50,45,52,53,
50,45,43,54,49,56
1008 DATA C5,57,48,41,D4,00,FE,03,20,4F,
DD,E5,E1,11,49,96
1009 DATA 01,06,00,ED,B0,3E,FF,18,05,06,
00,B7,20,3B,32,53
1010 DATA 96,C9,FE,07,20,33,DD,7E,0D,B7,
20,2D,DD,46,0C,0E
1011 DATA 03,DD,5E,00,DD,56,01,7B,B2,28,
16,DD,6E,06,DD,66
1012 DATA 07,7D,B4,28,14,C5,7E,83,77,23,
7E,8A,77,23,10,F6
1013 DATA C1,DD,23,DD,23,0D,20,D9,C9,C3,
3A,98,FE,07,20,F9
1014 DATA DD,7E,0D,B7,20,F3,DD,46,0C,0E,
03,DD,5E,00,DD,6E
1015 DATA 06,DD,66,07,7D,B4,28,E1,E5,FD,
E1,C5,7B,B7,28,0C
1016 DATA DD,CB,01,7E,F5,C4,9D,91,F1,CC,
04,92,C1,DD,23,DD
1017 DATA 23,0D,20,D7,C9,ED,44,4F,FD,6E,
00,FD,66,01,C5,CB
1018 DATA 7C,F5,C4,C3,91,79,CD,CA,91,F1,
C4,C3,91,C1,FD,75
1019 DATA 00,FD,74,01,FD,23,FD,23,10,DE,
C9,AF,57,5F,EB,ED
```

```
1020 DATA 52,C9,5F,AF,47,4F,57,E5,ED,52,
E1,3F,30,0A,3C,CB
1021 DATA 23,CB,12,F2,CF,91,18,08,B7,28,
1E,CB,3A,CB,1B,3D
1022 DATA B7,ED,52,03,B7,28,12,CB,3A,CB,
1B,CB,21,CB,10,E5
1023 DATA ED,52,E1,3F,38,E9,3D,18,EB,60,
69,C9,48,FD,6E,00
1024 DATA FD,66,01,EB,21,00,00,06,08,07,
30,01,19,29,10,F9
1025 DATA CB,2C,CB,1D,FD,75,00,FD,74,01,
FD,23,FD,23,0D,20
1026 DATA DC,C9,FE,03,20,42,DD,4E,00,DD,
46,01,DD,5E,02,DD
1027 DATA 56,03,DD,6E,04,DD,66,05,78,B1,
28,2C,7A,B3,28,28
1028 DATA 7C,B5,28,24,D5,E5,CD,60,92,EB,
09,38,19,EB,E1,E5
1029 DATA CD,60,92,E1,D1,ED,B0,C9,E5,ED,
52,E1,D0,09,38,05
1030 DATA ED,52,30,01,C9,E1,E1,E1,C3,3A,
98,FE,07,20,F9,DD
1031 DATA 7E,0D,B7,20,F3,DD,46,0C,0E,03,
DD,6E,06,DD,66,07
1032 DATA DD,E5,C5,E5,DD,E1,CD,C8,92,C1,
B7,FC,BA,92,C5,CD
1033 DATA E1,92,C1,CB,79,C4,BA,92,CB,B9,
DD,E1,EB,DD,6E,00
1034 DATA DD,66,01,7D,B4,28,C1,73,23,72,
DD,23,DD,23,0D,20
1035 DATA C9,C9,5F,AF,95,6F,3E,00,9C,67,
3E,00,9B,CB,F9,C9
1036 DATA AF,67,6F,DD,5E,00,DD,56,01,0E,
00,CB,7A,28,01,0D
1037 DATA 19,89,DD,23,DD,23,10,EB,C9,5F,
48,AF,57,47,FD,6F
1038 DATA DD,21,00,00,B1,28,3D,CD,30,93,
30,0D,FD,2C,CB,21
1039 DATA CB,10,CB,12,F2,EF,92,18,0D,FD,
7D,B7,28,26,CB,3A
1040 DATA CB,18,CB,19,FD,2D,B7,ED,42,7B,
9A,5F,DD,23,FD,7D
1041 DATA B7,28,11,CB,3A,CB,18,CB,19,DD,
29,CD,30,93,38,E4
1042 DATA FD,2D,18,EA,DD,E5,E1,C9,7A,BB,
D8,C0,E5,ED,42,E1
1043 DATA 3F,C9,FE,04,20,45,DD,E5,E1,5E,
23,56,23,D5,3D,20
1044 DATA F8,C1,E1,D1,DD,E1,B0,20,32,41,
C5,D5,E5,CD,6B,93
1045 DATA CD,C0,BB,E1,D1,D5,E5,CD,6B,93,
CD,F6,BB,E1,D1,C1
1046 DATA 10,E8,C9,DD,4E,00,06,00,DD,23,
CB,21,CB,10,09,EB
1047 DATA 09,4E,23,46,EB,5E,23,56,69,60,
C9,C3,3A,98,FE,0D
1048 DATA 20,F9,DD,7E,19,B7,20,F3,DD,22,
4F,96,DD,4E,18,47
1049 DATA B1,20,01,04,CB,21,CB,10,FD,2E,
03,DD,6E,12,DD,66
1050 DATA 13,DD,5E,0C,DD,56,0D,7D,B4,28,
D0,7B,B2,28,CC,C5
1051 DATA ED,B0,C1,DD,23,DD,23,FD,2D,20,
E0,DD,2A,4F,96,DD
1052 DATA 46,18,0E,03,DD,5E,00,DD,56,01,
AF,6F,67,ED,52,28
1053 DATA 0A,EB,DD,6E,0C,DD,66,0D,CD,1D,
95,DD,23,DD,23,0D
1054 DATA 20,E2,06,03,21,3D,96,EB,DD,6E,
00,DD,66,01,DD,E5
```

```
1055 DATA C5,B7,01,68,01,ED,42,30,FC,09,
E5,D5,CD,2E,95,EB
1056 DATA E1,73,23,72,23,EB,E1,D5,CD,2A,
95,EB,E1,73,23,72
1057 DATA 23,C1,DD,E1,DD,23,DD,23,10,CD,
06,03,DD,E5,E1,5E
1058 DATA 23,56,23,D5,10,F9,DD,46,0C,DD,
E1,FD,E1,FD,E5,DD
1059 DATA E5,C5,21,3D,96,CD,BA,95,C1,FD,
E1,E1,DD,E1,DD,E5
1060 DATA E5,C5,21,41,96,CD,BA,95,C1,FD,
E1,DD,E1,C5,21,45
1061 DATA 96,CD,BA,95,C1,DD,2A,4F,96,0E,
03,DD,5E,00,DD,56
1062 DATA 01,7B,B2,28,09,DD,6E,0C,DD,66,
0D,CD,1B,95,DD,23
1063 DATA DD,23,0D,20,E6,3A,53,96,3C,C0,
2A,4F,96,78,01,0C
1064 DATA 00,09,06,03,5E,23,56,23,D5,10,
F9,47,DD,E1,FD,E1
1065 DATA E1,C5,5E,23,56,23,E5,FD,E5,DD,
E5,D5,2A,49,96,B7
1066 DATA ED,52,20,09,D1,11,59,96,CD,13,
95,18,11,11,54,96
1067 DATA CD,13,95,E3,11,59,96,CD,13,95,
D1,CD,64,BD,DD,E1
1068 DATA 2A,4D,96,CD,DF,94,DD,E3,2A,4B,
96,CD,DF,94,DD,E3
1069 DATA FD,E1,E1,C1,10,BB,C9,DD,E5,DD,
5E,00,DD,56,01,B7
1070 DATA ED,52,D5,11,54,96,CD,13,95,11,
59,96,CD,61,BD,21
1071 DATA 54,96,CD,46,BD,47,DC,A9,BD,D1,
EB,B7,ED,52,DD,E1
1072 DATA DD,75,00,DD,74,01,DD,23,DD,23,
C9,7C,F5,B7,FC,C7
1073 DATA BD,F1,C3,40,BD,C5,7E,83,77,23,
7E,8A,77,23,10,F6
1074 DATA C1,C9,11,5A,00,19,11,68,01,B7,
ED,52,30,01,19,E5
1075 DATA 11,B4,00,B7,ED,52,30,01,19,7D,
FE,5B,38,03,3E,B4
1076 DATA 95,32,5D,95,AF,21,B4,00,D1,ED,
52,30,01,3D,67,DD
1077 DATA 21,5F,95,DD,6E,00,C9,00,04,08,
0D,11,16,1A,1F,23
1078 DATA 28,2C,30,35,39,3D,42,46,4A,4F,
53,57,5B,5F,64,68
1079 DATA 6C,70,74,78,7C,80,83,87,8B,8F,
92,96,9A,9D,A1,A4
1080 DATA A7,AB,AE,B1,B5,B8,BB,BE,C1,C4,
C6,C9,CC,CF,D1,D4
1081 DATA D6,D9,DB,DD,DF,E2,E4,E6,E8,E9,
EB,ED,EE,F0,F2,F3
1082 DATA F4,F6,F7,F8,F9,FA,FB,FC,FC,FD,
FE,FE,FF,FF,FF,FF
1083 DATA FF,FF,C5,5E,23,56,23,4E,23,46,
69,60,C1,C5,E5,D5
1084 DATA DD,5E,00,DD,56,01,CD,22,96,D1,
D5,E5,FD,6E,00,FD
1085 DATA 66,01,EB,CD,22,96,D1,19,22,51,
96,D1,D5,DD,4E,00
1086 DATA DD,46,01,AF,6F,67,ED,42,EB,CD,
22,96,C1,D1,D5,C5
1087 DATA E5,FD,6E,00,FD,66,01,EB,CD,22,
96,D1,19,FD,75,00
1088 DATA FD,74,01,2A,51,96,DD,75,00,DD,
74,01,DD,23,DD,23
1089 DATA FD,23,FD,23,D1,E1,C1,10,A4,C9,
E5,7D,21,00,00,06
```

```
1090 DATA 08,0F,30,01,19,CB,2C,CB,1D,10,
F6,F1,3C,C0,EB,6F
1091 DATA 67,B7,ED,52,C9,00,00,00,00,00,
00,00,00,00,00,00
1092 DATA 00,00,00,00,00,00,00,00,00,00,
00,00,00,00,00,00
1093 DATA 00,00,00,00,00,00,21,80,96,7E,
B7,C8,CD,5A,BB,23
1094 DATA 18,F7,45,72,72,6F,72,20,69,6E,
20,70,61,72,61,6D
1095 DATA 65,74,65,72,73,0D,0A,00,0D,0A,
0D,0A,3C,20,20,33
1096 DATA 20,44,20,2D,20,50,52,4F,43,45,
53,53,4F,52,20,31
1097 DATA 2E,32,20,20,3E,0D,0A,77,72,69,
74,74,65,6E,20,31
1098 DATA 39,38,36,20,62,79,20,4F,2E,20,
57,65,6C,73,63,68
1099 DATA 0D,0A,43,6F,6D,6D,61,6E,64,73,
3A,0D,0A,2D,20,50
1100 DATA 45,52,53,50,45,43,54,49,56,45,
2C,66,78,2C,66,79
1101 DATA 2C,66,7A,0D,0A,2D,20,4E,4F,2E,
50,45,52,53,50,45
1102 DATA 43,54,49,56,45,0D,0A,2D,20,54,
52,41,4E,53,46,45
1103 DATA 52,2C,73,6F,75,72,63,65,2C,64,
65,73,74,2C,23,20
1104 DATA 62,79,74,65,73,0D,0A,2D,20,43,
45,4E,54,52,45,2C
1105 DATA 23,20,70,74,73,2C,0D,0A,20,20,
40,70,78,2C,40,70
1106 DATA 79,2C,40,70,7A,2C,40,6D,78,25,
2C,40,6D,79,25,2C
1107 DATA 40,6D,7A,25,0D,0A,2D,20,4D,4F,
56,45,20,28,4D,29
1108 DATA 2C,23,20,70,74,73,2C,0D,0A,20,
20,40,70,78,2C,40
1109 DATA 70,79,2C,40,70,7A,2C,64,78,2C,
64,79,2C,64,7A,0D
1110 DATA 0A,2D,20,5A,4F,4F,4D,20,28,5A,
29,2C,23,20,70,74
1111 DATA 73,2C,0D,0A,20,20,40,70,78,2C,
40,70,79,2C,40,70
1112 DATA 7A,2C,7A,78,2C,7A,79,2C,7A,7A,
0D,0A,2D,20,43,41
1113 DATA 4C,43,55,4C,41,54,45,20,28,43,
29,2C,23,20,70,74
1114 DATA 73,2C,0D,0A,20,20,40,70,78,2C,
40,70,79,2C,40,70
1115 DATA 7A,2C,40,70,6E,78,2C,40,70,6E,
79,2C,40,70,6E,7A
1116 DATA 2C,0D,0A,20,20,77,78,2C,77,79,
2C,77,7A,2C,72,78
1117 DATA 2C,72,79,2C,72,7A,0D,0A,2D,20,
44,49,53,50,4C,41
1118 DATA 59,20,28,44,29,2C,23,20,6C,69,
6E,65,73,2C,0D,0A
1119 DATA 20,20,40,70,6E,78,2C,40,70,6E,
79,2C,40,6C,69,6E
1120 DATA 65,2D,61,72,72,61,79,0D,0A,2D,
20,57,48,41,54,0D
1121 DATA 0A,70,78,2D,70,7A,2C,70,6E,78,
2D,70,6E,7A,3A,20
1122 DATA 69,6E,74,65,67,65,72,2D,61,72,
72,61,79,73,0D,0A
1123 DATA 0A,00,21,6A,96,C3,61,96
```

Beispiel

```
100 ' BEISPIEL 2
110 '
120 ' Diese Routine laesst unter Zuhilfe
nahme des Utility-Paketes
130 ' einen Koerper (hier einen Wuerfel)
 beliebige, zufallsgesteuerte
140 ' Bewegungen im Raum ausfuehren
150 '
160 ' Autor: O.Welsch, 5489 Nuerburg/Eif
el
170 ' Stand: Maerz 1986
180 '
190 '
200 ' Konstanten- und Variablendeklarati
on
210 pmax=8 : gmax=12  ' Anzahl Eckpunkte
 und Geraden einschl. p(0) und g(0)
220 wx=0 : wy=0 : wz=0  ' Anfangsdrehwin
kel
230 dwx=0 : dwy=6 : dwz=0  ' Drehwinkelo
ffsets
240 mx%=0 : my%=0 : mz%=0  ' Mittelpunkt
koordinaten des Wuerfels
250 rx=0 : ry=0 : rz=0  ' Drehpunktkoord
inaten (hier: Koerpermittelpunkt)
260 dx=0 : dy=0 : dz=0  ' Laengenabschni
tte zum Anfahren der Zielkoordinaten
270 fx=0 : fy=40 : fz=1000  ' Fluchtpunk
tkoordinaten
280 s=10  ' Anzahl der Bewegungsabschnit
te
290 DIM px%(pmax-1),py%(pmax-1),pz%(pmax
-1)  ' Eckpunktkoordinaten (0..pmax-1)
300 DIM pnx%(pmax-1),pny%(pmax-1),pnz%(p
max-1)  ' Arbeitsspeicher zum Drehen
310 DIM g%(gmax-1)  ' Eckpunktspeicher d
er Geraden (0..gmax-1)
320 ' Koordinaten der Eckpunkte einlesen
330 FOR i=0 TO pmax-1
340   READ px%(i),py%(i),pz%(i)
350 NEXT
360 ' Koerper um das 200-fache nach alle
n Richtungen vergroessern
370 !ZOOM,pmax,@px%(0),@py%(0),@pz%(0),2
00,200,200
380 ' Nummern der Anfangs- und Endpunkte
 jeder Kante einlesen
390 FOR i=0 TO gmax-1
400   READ p0,p1
410   g%(i)=256*p0+p1
420 NEXT
430 ' Mittelpunkt des Wuerfels bestimmen
440 !CENTRE,pmax,@px%(0),@py%(0),@pz%(0)
,@mx%,@my%,@mz%
450 ' Wuerfel so verschieben, dass sein
Mittelpunkt gleich dem Nullpunkt ist
460 !MOVE,pmax,@px%(0),@py%(0),@pz%(0),-
mx%,-my%,-mz%
470 ' Koordinatenursprung (X/Y) in die B
ildschirmmitte setzen
480 ORIGIN 320,200
490 ' Fluchtpunktkoordinaten dem 3D-Proc
essor uebergeben
500 !PERSPECTIVE,fx,fy,fz
510 '
520 ' Hauptprogramm; laesst den Koerper
beliebige Bewegungen im Raum ausfuehren
```

```
530 WHILE NOT 0
540   RESTORE 870
550   FOR i=1 TO 6
560     READ dx,dz
570     dx=dx/s : dz=dz/s
580     FOR j=1 TO s
590       'Koerper im Raum um dx/dy/dz v
erschieben
600       !MOVE,pmax,@px%(0),@py%(0),@pz
%(0),dx,dy,dz
610       'Drehpunkt des Wuerfels mitver
schieben
620       rx=rx+dx : ry=ry+dy : rz=rz+dz
630       'Drehwinkel um dwx/dwy/dwz erh
oehen
640       wx=(360+wx+dwx) MOD 360
650       wy=(360+wy+dwy) MOD 360
660       wz=(360+wz+dwz) MOD 360
670       ' Drehung und Perspektive bere
chnen
680       !CALCULATE,pmax,@px%(0),@py%(0
),@pz%(0),@pnx%(0),@pny%(0),@pnz%(0),wx,
wy,wz,rx,ry,rz
690       ' Koerper darstellen
700       CLS
710       !DISPLAY,gmax,@pnx%(0),@pny%(0
),@g%(0)
720     NEXT j
730     FOR j=1 TO 100*s
740     NEXT j
750   NEXT i
760 WEND
770 '
780 ' Daten fuer WUERFEL
790 ' Koordinaten Eckpunkte (p0-p7)
800 DATA 0,0,0, 1,0,0, 1,1,0, 0,1,0
810 DATA 0,0,1, 1,0,1, 1,1,1, 0,1,1
820 ' Nummern der Anfangs- und Endpunkte
 der Kanten (g0-g11)
830 DATA 0,1, 1,2, 2,3, 3,0
840 DATA 4,5, 5,6, 6,7, 7,4
850 DATA 0,4, 1,5, 2,6, 3,7
860 '
870 ' Bewegungsdaten: X- und Z-Koordinat
en
880 DATA 0,-900,-250,0,450,1200,0,-1250,
-100,50,-100,900
```

Beispiel

```
1000 ' BEISPIEL 4
1010 '
1020 ' Diese Routine laesst den Schriftz
ug "SCHNEIDER" auf dem Monitor
1030 ' mit Hilfe des "3D-Processors" rot
ieren
1040 '
1050 ' Autor: O.Welsch, Nuerburg
1060 ' Stand: Maerz 1986
1070 '
1080 '
1090 ' Konstanten- und Variablendeklarat
ion
1100 '
1110 pmax=48 : gmax=35   ' Anzahl Eckpunk
te und Geraden einschl. p(0) und g(0)
1120 wx=0 : wy=0 : wz=0   ' Anfangsdrehwi
nkel
1130 dwx=5 : dwy=5 : dwz=5   ' Drehwinkel
offsets
```

```
1140 mx%=0 : my%=0 : mz%=0   ' Mittelpunk
tkoordinaten
1150 rx=0 : ry=0 : rz=0   ' Drehpunktkoor
dinaten
1160 pflag=0   ' Flag: 0=keine Perspektiv
e
1170 fx=0 : fy=0 : fz=1000   ' Fluchtpunk
tkoordinaten
1180 DIM p%(pmax-1,2)   ' Eckpunktkoordin
aten (0..pmax-1)
1190 DIM pn%(pmax-1,2)   ' Arbeitsspeiche
r zum Drehen
1200 DIM g%(gmax-1)   ' Eckpunktspeicher
der Geraden (0..gmax-1)
1210 '
1220 ' Hauptprogramm
1230 '
1240 ' Koordinaten der Eckpunkte einlese
n
1250 FOR i=0 TO pmax-1
1260    READ p%(i,0),p%(i,1)
1270    p%(i,2)=0
1280 NEXT
1290 ' Koerper in X- und Y-Richtung verg
roessern
1300 !ZOOM,pmax,@p%(0,0),@p%(0,1),@p%(0,
2),15,50,0
1310 ' Nummern der Anfangs- und Endpunkt
e jeder Kante einlesen
1320 FOR i=0 TO gmax-1
1330    READ p0,p1
1340    g%(i)=256*p0+p1
1350 NEXT
1360 ' Mittelpunkt bestimmen
1370 !CENTRE,pmax,@p%(0,0),@p%(0,1),@p%(
0,2),@mx%,@my%,@mz%
1380 ' Zentrum des Koerpers in Nullpunkt
 verschieben
1390 !MOVE,pmax,@p%(0,0),@p%(0,1),@p%(0,
2),-mx%,-my%,100
1400 rx=0 : ry=0 : rz=mz%+100
1410 ' Koordinatenursprung in Bildschirm
mitte setzen
1420 ORIGIN 320,200
1430 ' Fluchtpunktkoordinaten dem 3D-Pro
cessor uebergeben
1440 IF pflag THEN !PERSPECTIVE,fx,fy,fz
 ELSE !NO.PERSPECTIVE
1450 '
1460 ' Kontinuierlich drehen
1470 WHILE NOT 0
1480    dwx=RND*20-10 : dwy=RND*20-10 : d
wz=RND*20-10
1490    FOR i=1 TO 70   ' 70 willkuerliche
 Drehungen
1500       GOSUB 1570   ' drehen
1510    NEXT
1520    FOR t=0 TO 3000 : NEXT
1530    wx=0 : wy=0 : wz=0
1540    GOSUB 1570
1550    FOR t=0 TO 3000 : NEXT
1560 WEND
1570 'PROCEDURE drehen (dreht den Schrif
tzug und stellt ihn dar)
1580    ' Drehung berechnen
1590    !CALCULATE,pmax,@p%(0,0),@p%(0,1)
,@p%(0,2),@pn%(0,0),@pn%(0,1),@pn%(0,2),
wx,wy,wz,rx,ry,rz
1600    ' Koerper darstellen
1610    CLS
1620    !DISPLAY,gmax,@pn%(0,0),@pn%(0,1)
,@g%(0)
```

```
1630    ' Drehwinkel um betreffenden Offs
et erhoehen
1640    wx=(360+wx+dwx) MOD 360:wy=(360+w
y+dwy) MOD 360:wz=(360+wz+dwz) MOD 360
1650 RETURN '(drehen)
1660 '
1670 '
1680 ' Daten fuer Schriftzug "SCHNEIDER"
1690 ' X- und Y-Koordinaten Eckpunkte (p
0-p47)
1700 ' "S"
1710 DATA 0,0,2,0,2,2,0,2,0,4,2,4
1720 ' "C"
1730 DATA 6,0,4,0,4,4,6,4
1740 ' "H"
1750 DATA 8,0,8,4,10,0,10,4,8,2,10,2
1760 ' "N"
1770 DATA 12,0,12,4,14,0,14,4
1780 ' "E"
1790 DATA 18,0,16,0,16,4,18,4,16,2,18,2
1800 ' "I"
1810 DATA 20,0,20,4
1820 ' "D"
1830 DATA 22,0,22,4,23,4,24,3,24,1,23,0
1840 ' "E"
1850 DATA 28,0,26,0,26,4,28,4,26,2,28,2
1860 ' "R"
1870 DATA 30,0,30,4,32,4,32,2,30,2,31,2,
32,1,32,0
1880 ' Nummern der Anfangs- und Endpunkt
e der Kanten (g0-g34)
1890 ' "S"
1900 DATA 0,1, 1,2, 2,3, 3,4, 4,5
1910 ' "C"
1920 DATA 6,7, 7,8, 8,9
1930 ' "H"
1940 DATA 10,11, 12,13, 14,15
1950 ' "N"
1960 DATA 16,17, 17,18, 18,19
1970 ' "E"
1980 DATA 20,21, 21,22, 22,23, 24,25
1990 ' "I"
2000 DATA 26,27
2010 ' "D"
2020 DATA 28,29, 29,30, 30,31, 31,32, 32
,33, 33,28
2030 ' "E"
2040 DATA 34,35, 35,36, 36,37, 38,39
2050 ' "R"
2060 DATA 40,41, 41,42, 42,43, 43,44, 45
,46, 46,47
```

Anpassung für 664

```
200 DIM psum(32)
220 FOR lin=1 TO 32
260 IF sum<>227122 THEN PRINT"Error in c
hecksums" : PRINT"*ERROR*" : END
280 FOR adr=UNT(37000) TO UNT(38993)
380 SAVE"3d-proc.bin",b,37000,1995,37000
530 DATA 8136,9739,7425,6096,12922,8822,
6291,3729
540 DATA 4401,4709,4390,4429,4834,4660,5
787,1626
1067 DATA CD,13,95,E3,11,59,96,CD,13,95,
D1,CD,85,BD,DD,E1
1070 DATA ED,52,D5,11,54,96,CD,13,95,11,
59,96,CD,82,BD,21
1071 DATA 54,96,CD,67,BD,47,DC,40,98,D1,
EB,B7,ED,52,DD,E1
1072 DATA DD,75,00,DD,74,01,DD,23,DD,23,
C9,7C,F5,B7,FC,49
1073 DATA 98,F1,C3,61,BD,C5,7E,83,77,23,
7E,8A,77,23,10,F6
1123 DATA 0A,00,21,6A,96,C3,61,96,CD,00,
B9,CD,3C,DD,C3,03
1124 DATA B9,CD,00,B9,CD,F2,DD,C3,03,B9
```

Anpassung für 6128

```
200 DIM psum(32)
220 FOR lin=1 TO 32
260 IF sum<>227124 THEN PRINT"Error in c
hecksums" : PRINT"*ERROR*" : END
280 FOR adr=UNT(37000) TO UNT(38993)
380 SAVE"3d-proc.bin",b,37000,1995,37000
530 DATA 8139,9745,7428,6096,12922,8822,
6291,3729
540 DATA 4401,4709,4390,4429,4834,4660,5
782,1621
1067 DATA CD,13,95,E3,11,59,96,CD,13,95,
D1,CD,88,BD,DD,E1
1070 DATA ED,52,D5,11,54,96,CD,13,95,11,
59,96,CD,85,BD,21
1071 DATA 54,96,CD,6A,BD,47,DC,40,98,D1,
EB,B7,ED,52,DD,E1
1072 DATA DD,75,00,DD,74,01,DD,23,DD,23,
C9,7C,F5,B7,FC,49
1073 DATA 98,F1,C3,64,BD,C5,7E,83,77,23,
7E,8A,77,23,10,F6
1123 DATA 0A,00,21,6A,96,C3,61,96,CD,00,
B9,CD,37,DD,C3,03
1124 DATA B9,CD,00,B9,CD,ED,DD,C3,03,B9
```