

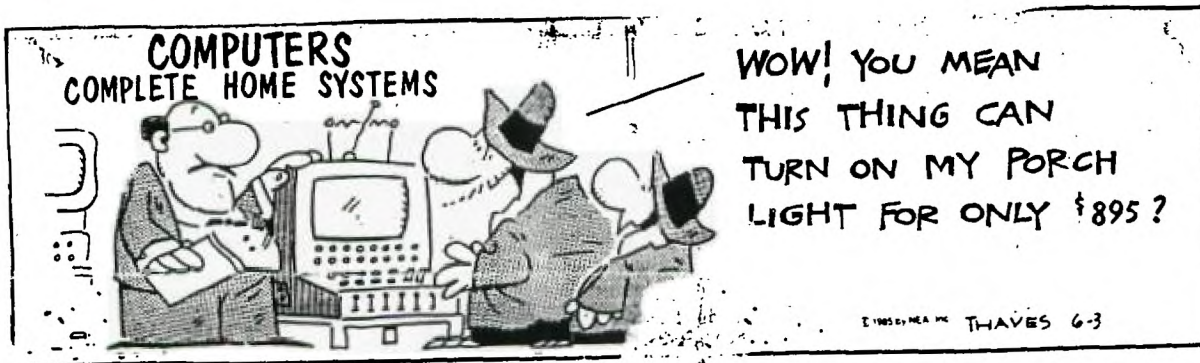
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HOCUS

Home Computer
Users Spotlight

a monthly publication of the
Milwaukee Area 99/4 Users Group



THE FORUM

Thought for the month:
"The attention span of a computer is
only as long as its electrical cord"

APRIL - 1987

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Next Group Meeting
May 9, 1987
Wauwatosa S&L 7500 W. State
12:00 Noon - 4:00 PM

Next S. I. G. Meeting
May 5, 1987
Security S&L 5555 Ft. Wash.
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```

10 CALL CLEAR
11 CALL COLOR(12,2,2)
12 CALL HCHAR(1,1,120,32)::
CALL HCHAR(24,1,120,32):: CA
LL VCHAR(1,1,120,24):: CALL
VCHAR(1,32,120,24)
20 CALL SCREEN(11)
30 DISPLAY AT(10,8):"DESERT
WARFARE"
40 DISPLAY AT(12,9):" FREEM
ARE "
50 DISPLAY AT(14,9):"BY JIM
BECK"
60 DISPLAY AT(21,9):"PRESS A
NY KEY"
70 CALL KEY(0,K,S):: IF S=0
THEN 70
100 RANDOMIZE
110 SCR=0
120 TIC=0
130 CALL COLOR(8,2,2):: CALL
COLOR(9,2,2):: CALL COLOR(1
2,2,2)
140 CALL CLEAR
150 ENS=3
160 NKJ=1
170 CALL SCREEN(2)
180 CALL COLOR(1,2,2)
190 CALL MASNIFY(3)
200 CALL CHAR(40,"30307FBFFC
7F7070705048488E000000000000
000000000000000000000000")
201 CALL CHAR(100,"000001000
1010303030100000000000000000
00000300000000000000000000")
202 CALL CHAR(104,"001F1F0F0
8090E0E0090E0F1F0000000FF
FFF01F1F79F7F101FFFFF0000")
210 CALL CHAR(130,"804020100
8040201010204081020408")
220 CALL CHAR(132,"000402010
000000000000000000000000529
49F0F0F0F0F0F0462000207020")

```

```

230 FOR DELAY=1 TO 30
240 CALL HCHAR(1+INT(248RND)
,1+INT(328RND),96,6)
250 NEXT DELAY
251 FOR DELAY=1 TO 15
252 CALL HCHAR(1+INT(248RND)
,1+INT(328RND),120)
253 CALL HCHAR(1+INT(248RND)
,1+INT(328RND),108,2)
254 NEXT DELAY
260 CALL CHAR(92,"000C1E1F3F
FE0E0E0E0A121?11000000000000
000000000000000000000000")
270 CALL SPRITE(81,40,2,96,1
28)
280 CALL CHAR(120,"3E4181818
191916E")
281 CALL CHAR(108,"000480020
09000010")
290 CALL CHAR(124,"000804020
1000000000103020202020000000
06C3C387070E0C080808080000")
300 CALL COLOR(12,2,16)
310 CALL COLOR(13,8,11)
320 CALL VCHAR(2,15,120,22)
330 CALL VCHAR(2,18,120,22)
331 CALL HCHAR(13,19,108,14)
:: CALL HCHAR(14,19,108,14):
: CALL HCHAR(15,19,108,14)
332 CALL HCHAR(12,19,120,14)
:: CALL HCHAR(16,19,120,14)
340 CALL HCHAR(1,16,120,2)
350 CALL HCHAR(24,16,120,2)
360 CALL VCHAR(2,16,130,22)
361 CALL VCHAR(8,4,120,4)::
CALL HCHAR(7,3,120):: CALL H
CHAR(12,3,120)
362 CALL VCHAR(8,3,131,4)
370 CALL VCHAR(2,17,131,22)
380 CALL CHAR(96,"00C8255A8C
5C1918")
390 CALL COLOR(9,3,11)
400 CALL HCHAR(15,8,96):: CA

```

```

LL HCHAR(6,3,96):: CALL HCHA
R(20,23,96):: CALL HCHAR(7,3
0,96)
410 CALL SCREEN(11):: CALL C
OLOR(1,2,11)
420 BR=20+INT(1508RND)
430 TOP=1+INT(58RND):: IF TO
P=2 THEN CALL SPRITE(82,132,
13,1,60,-30,4):: GOTO 450
431 TOR=1+INT(88RND):: IF TO
R=5 THEN CALL SPRITE(82,104,
2,100,256,0,-16):: TOP=2 ::
GOTO 450
432 UID=1+INT(48RND):: IF UI
D=2 THEN CALL SPRITE(82,40,2
,88,256,0,8):: GOTO 450
440 IF BR>90 THEN CALL SPRIT
E(82,40,2,BR,1,10-INT(208RND
),ENS)ELSE CALL SPRITE(82,92
,2,BR,1,10-INT(208RND),-ENS)
450 ENS=ENS+1 :: IF ENS>30 T
HEN ENS=30
460 CALL JOYST(1,X,Y):: IF X
=-4 THEN CALL PATTERN(81,40):
: NKJ=1 ELSE IF X=-4 THEN CA
LL PATTERN(81,92):: NKJ=-1
470 CALL MOTION(81,-Y8,0)
471 CALL DISTANCE(82,816,488
,F8T):: IF F8T<180 THEN CALL
DELSPRITE(82):: CALL HCHAR:
8,2,40):: CALL HCHAR(8,3,42)
:: GOTO 9000
480 CALL POSITION(82,JOP,POJ
):: IF POJ<116 THEN IF POJ<1
30 THEN IF JOP<175 THEN IF J
OP>16 THEN 660
490 CALL KEY(1,K,S):: IF K=1
8 THEN 510
500 GOTO 460
510 CALL SOUND(1,-5,0)
520 CALL POSITION(82,BR,SKJ)
521 CALL SOUND(1,-7,0)
530 IF NKJ=1 THEN IF SKJ<129
THEN 560
540 IF NKJ=-1 THEN IF SKJ>12
8 THEN 560
550 CALL POSITION(41,8,H)::
IF BR+16>S THEN IF BR-16<S ?
4EN CALL SOUND(50,-7,0):: 80
TO 570

```

```

560 GOTO 500
570 IF TOP>2 THEN CALL PATT
ERN(82,124)ELSE 650
571 IF TOP=8 THEN CALL DELSP
RITE(82)
580 CALL MOTION(82,0,0,81,0,
0)
581 CALL HCHAR(8,32,2):: C
ALL HCHAR(9,3,32,2)
590 FOR DELAY=1 TO 30 STEP 4
600 CALL SOUND(-99,140-DELAY
,9)
610 NEXT DELAY
620 SCR=SCR+250
630 CALL DELSPRITE(82)
640 GOTO 420
650 CALL COLOR(82,9):: CALL
SOUND(300,-6,0):: GOTO 550
660 CALL MOTION(82,0,0,81,0,
0):: CALL PATTERN(81,124)::
CALL SOUND(100,131,0):: CALL
SOUND(50,131,0):: CALL SOUN
D(700,156,0)
670 IF SCR>HISCR THEN HISCR=
SCR :: CALL COLOR(8,2,1)ELSE
CALL COLOR(8,2,1)
680 DISPLAY AT(10,8):"HISCR
E":HISCR
690 DISPLAY AT(12,9):"SCORE="
:SCR
700 DISPLAY AT(15,9):"PRESS
ANY KEY"
710 CALL KEY(0,K,S):: IF S=0
THEN 710
720 GOTO 100
9000 CALL HCHAR(9,2,41):: CA
LL HCHAR(9,3,40):: CALL SPRIT
E(82,100,2,818,215,4-INT(81
8RND),10):: TOP=8
9001 FOR DE=1 TO 15
9002 CALL SOUND(1,590-DE*5,0
)
9003 NEXT DE
9010 GOTO 420

```

(FROM PITTSBURG UG,
MARCH 1987 NEWSLETTER)

Music Programming: Using Noise As Low Bass Notes
By, Bill Knecht

An article in the October 1986 HUG Newsletter by Jeff Gatlin prompted me to write this article on Low Bass Notes. Mr. Gatlin gave a good explanation on how the low note is created by using a CALL SOUND with three voices and one noise, but there is an easier way to correct the affect of a seventh note being played. The seventh note is played for the bass note if you use a CALL SOUND (1000,330,0,392,0,523,0,-4,0). To correct this he suggested using a mover note, such as 494 instead of 523. Trouble is that if you are reading the music and typing it in, you have to remember to enter the "wrong" note, like C# for C or F# for F.

One way I do it is to multiply the third note by 3.75. The CALL SOUND statement would look like this: CALL SOUND (1000,330,0,392,0,523*3.75,30,-4,0)

I use the 30 for the volume of the third note so it will be too low to be heard. Thus you have a low C, two octaves below middle C or the one below 131.

Below is a sample program you can type in to see how the low notes decrease:

```
100 CALL SOUND (1000,523,0)
110 CALL SOUND (1000,262,0)
120 CALL SOUND (1000,131,0)
130 CALL SOUND (1000,523,30,523,30,523*3.75,30,-4,0)
140 CALL SOUND (1000,262,30,262,30,262*3.75,303,-4,0)
150 END
```

This is the technique I used in my recent music program "Holiday Road" and the technique used in the popular Pennsylvania Polka and Beer Barrel Polka.

Another Technique is to multiply the third note by 7.480916. This will drop the sound one octave. In other words, CALL SOUND (1000,131,30,131,30,131*7.480916,30,-4,0) would give you the note that is one octave below low C (131). I like this technique because you can input the third note as a "normal" low note, then by adding the noise routine drop the note one octave. I used this procedure in my new Christmas song named "Santa". If you like programming music, I would urge you to try this and see what kind of sounds you can come up with.

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TED, GENE, JIM & RON

```

*****
*
* TWO-WAY COMMUNICATIONS FOR X-BASIC
*
* Dr. Roy T. Tamashiro
*
*****

```

Have you ever tried to use BASIC or Extended BASIC to communicate with another computer? If so, you soon discover that you can send and receive data (using PRINT # and INPUT # or LINPUT # instructions), but there are no instructions which allow simultaneous two-way communications. This "chat" mode is not available in the ordinary BASICs because you may not interrupt the PRINT # and (L)INPUT # instructions which are waiting for carriage returns. This is like having a walkie-talkie conversation in which each person must say "OVER" and release a switch before the other person can talk.

The "COMMUNICATIONS TERMINAL" program (See listing below and footnote) allows simultaneous two-way interaction. To use the program, you must have Extended BASIC, 32-K Memory Expansion, and an RS-232 Interface connected to a modem and phone line or direct wire to another computer. Type the program and SAVE it to your disk or cassette.

When you RUN the program, the screen clears, and whatever you type appears on your screen and is sent to the remote computer at 300 Baud. Whatever the remote computer sends to your computer appears on your screen also. When you or the remote computer sends a carriage return i.e. [Enter], a new line begins. The [left-arrow] key (CHR\$(8)) acts as a Backspace on the screen.

To exit the routine, press [FCTN-9]. The remote computer can also allow you to exit the terminal send a [Control-D] or CHR\$(15). To return to the terminal, type CALL LINK("START") and press [Enter].

```

100 !!!!!!!!!!!!!!!!!!!!!
110 !# COMMUNICATIONS #
120 !# TERMINAL #
130 !!!!!!!!!!!!!!!!!!!!!
140 !AUTHOR:ROY TAMASHIRO
150 !FEBRUARY 1987,X-BASIC,
MEMORY EXPANSION & RS232
160 CALL LOAD(8
196,63,248):: CALL LOAD(1637
6,83,54,65,52,34,32,48,0)
170 CALL LOAD(12288,2,224,50
,114,4,192,2,1,96,0,4,32,32,
32,5,128,2,128,3,0,22,250,2,
0)
180 CALL LOAD(12312,15,128,2
,1,50,98,2,2,0,16,4,32,32,36
,2,6,15,137,200,6,131,86,4,3
2)
190 CALL LOAD(12336,49,118,0
,8,4,192,2,12,19,64,31,21,22
,14,4,32,48,174,192,32,50,14
6,152,32)
200 CALL LOAD(12360,50,178,5
0,181,22,6,4,224,131,124,2,2
24,131,224,4,96,0,112,4,196,
216,4,131,124)
210 CALL LOAD(12384,4,32,32,
28,216,32,131,124,131,124,19
,229,208,96,131,117,152,1,50
,181,19,236,6,160)
220 CALL LOAD(12408,48,206,1
93,0,2,0,16,0,4,32,32,32,2,0
,15,128,2,1,3,0,4,32,32,32)
230 CALL LOAD(12432,2,0,15,1
33,2,1,1,0,4,32,32,32,2,6,15
,137,200,6,131,86,4,32,49,11
8)
240 CALL LOAD(12456,0,8,192,
4,16,214,50,146,48,178,192,3
2,50,114,2,12,19,64,31,21,22
,252,54,32)
250 CALL LOAD(12480,50,178,2
08,96,50,178,29,18,6,160,48,

```

```

206,3,128,152,1,50,180,22,5,
2,64,235,224)
260 CALL LOAD(12504,2,32,0,3
2,16,17,152,1,50,183,22,5,2,
128,0,0,19,37,6,0,16,35,216,
11)
270 CALL LOAD(12528,50,182,2
,33,96,0,4,32,32,208,96,5
0,182,5,128,2,128,3,0,17,23,
2,0)
280 CALL LOAD(12552,0,32,2,1
,50,184,2,2,2,224,4,32,32,44
,4,192,4,32,32,36,2,0,2,224)
290 CALL LOAD(12576,2,1,96,0
,4,32,32,32,5,128,2,128,3,0,
22,250,2,0,2,224,4,91,0,0)
300 CALL LOAD(12600,0,0,0,0,
0,0,0,0,0,0,0,0,0,0,0,0,0,0,
0,0,0,0,0,0)
310 CALL LOAD(12624,0,0,0,0,
0,0,0,0,0,0,0,0,0,0,0,0,0,0,
0)
320 CALL LOAD(12648,0,0,0,0,
0,0,0,0,0,100,32,0,46,170,49
,68,49,122,193,126,83,224,49
114)
330 CALL LOAD(12672,192,32,1
31,86,194,64,2,41,255,248,4,
32,32,40,208,193,4,131,7,4,2
,2,49,100)
340 CALL LOAD(12696,5,128,5,
152,128,196,19,6,4,32,32,40,
226,129,152,1,49,116,22,246,
173,4,19,82)
350 CALL LOAD(12720,2,132,0,
7,21,79,4,224,131,208,200,4,
131,84,200,4,49,62,5,132,168
,4,131,86)
360 CALL LOAD(12744,200,32,1
31,86,49,64,2,224,131,224,4,
193,2,12,15,0,195,12,19,1,30
,0,2,44)
370 CALL LOAD(12768,1,0,4,22
4,131,208,2,140,32,0,19,50,2
00,12,131,208,29,0,2,2,64,0,
152,18)
380 CALL LOAD(12792,49,117,2
2,238,160,160,49,78,16,3,192
,160,131,210,29,0,192,146,19
,230,200,2,131,210)
390 CALL LOAD(12816,5,194,19
4,114,209,96,131,85,19,9,156

```

```

,133,22,242,9,133,2,6,49,100
156,182,22,237)
400 CALL LOAD(12840,6,5,22,2
52,5,128,200,1,49,66,200,9,4
9,60,200,12,49,58,6,153,16,2
26,30,0)
410 CALL LOAD(12864,2,224,49
,68,192,9,4,32,32,40,9,209,2
2,4,3,128,2,224,49,68,4,193,
6,193)
420 CALL LOAD(12888,215,65,2
43,224,49,114,3,125,0,0,16,0
,40,0,0,0,0,6,82,83,50,51,50
46)
430 CALL LOAD(12912,50,46,47
,188,5,136,152,56,53,50,19,6
,6,8,16,4,4,224,47,186,2,8,5
5,6)
440 CALL LOAD(12936,7,32,47,
184,2,12,41,172,200,12,52,16
,168,12,52,10,2,12,41,252,13
1,32,52,10)
450 CALL LOAD(12960,17,5,200
,32,52,16,52,10,5,160,47,174
,6,12,200,12,52,14,0,0,13,15
0,8)
460 CALL LOAD(12984,19,52,6,
8,152,56,47,182,19,13,6,8,6,
160,53,44,195,76,5,141,6,8,1
52,56)
470 CALL LINK("START")
480 END

```

If your line out of the RS-232 interface has a Y-cable and you are using port 2, insert the following line to run the program via RS232/2:

```

465 CALL LOAD(12320,18):: CA
LL LOAD(12345,25):: CALL LO
AD(12905,8):: CALL LOAD(1291
1,47):: CALL LOAD(12473,125)

```

NOTE: The program is adapted from notes published by Texas Instruments Inc. on "9902 Asynchronous Communications Controller" and "DSRLNK Routine for XB".

Back when I was first learning about FORTH, Lee Stewart was writing words that impressed and inspired me to learn this "new" language. One of the few shortcomings was the lack of speech. Lee came up with a word to take care of that. This word takes a number off the stack which corresponds to the ROM location of the word to be said, and speaks that word. The list of the words and their locations can be found on pages 422-427 of the Editor/Assembler manual.

```

: SAY (n --- ) 4 0 DO 4 SRC DUP F000 AND 4 SRL 4000 + 9400 ! LOOP
4000 9400 ! 5000 9400 ! DROP ; ( This word is in HEX )

```

I have this word on screen #3 of my system disk and I follow it with:
56B3 3A32 2D19 3793 6551 SAY SAY SAY SAY SAY

Have fun playing around with this word and don't forget to experiment! What happens if you specify a location where a defined word does not exist? Go ahead and try it and we'll see you next month.

USING THE 99/4A FOR SOUND ANALYSIS: by Rick Kellogg

THE FOLLOWING THREE PROGRAMS WERE WRITTEN BY BILL GRONOS AND TAKEN FROM THE 'R/D COMPUTING NEWSLETTER'. THE NEWSLETTER IS PUBLISHED MONTHLY BY 'RYTE DATA', AND I WOULD HIGHLY RECOMMEND SIGNING UP FOR A SUBSCRIPTION. THE ONE YEAR SUBSCRIPTION PRICE IS \$14.00 U.S. FUNDS, \$17.00 FOREIGN. THIS INCLUDES FIRST CLASS POSTAGE AND IS WELL WORTH THE MONEY.

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A LITTLE ABOUT THE PROGRAMS; YOU MUST TYPE IN THIS SOURCE CODE AND ASSEMBLE THE OBJECT CODE IN ORDER TO BE ABLE TO RUN THE PROGRAMS. THE SOUND INPUT IS THROUGH YOUR CASSETTE PLAYER HOOKED UP WITH ONLY THE EAR SPEAKER WIRE CONNECTED TO THE COMPUTER. NOW ANYTHING THAT IS PLAYED ON THE CASSETTE WILL BE REPRODUCED ON YOUR SCREEN IN A WAVE PATTERN. THE FIRST PROGRAM IS 'SOUND ANALYZER' AND WILL DISPLAY A WAVE PATTERN ON YOUR SCREEN SOMEWHAT LIKE AN OSCILLOSCOPE. DIFFERENT SOUNDS WILL PRODUCE A DIFFERENT WAVE PATTERN. EXPERIMENT A LITTLE! THE SECOND PROGRAM, 'AUDIO SPECTRUM ANALYZER' GOES ONE STEP FURTHER. NOW THE SOUNDS PLAYED WILL BE REPRESENTED BY A GRADUATED BAR CHART. AND THE THIRD PROGRAM IS THE ONE I THINK IS THE MOST FUN! IT IS CALLED 'AUDIO SPECTRUM LIGHT SHOW', AND LIKE THE NAME IMPLIES, IT TURNS YOUR TI-99/4A INTO A 16 COLOR PSYCHEDELIC LIGHT SHOW. IT IS ESPECIALLY DEVASTATING IN COMPLETE DARKNESS. THE MUSIC CHOICES I SHALL LEAVE UP TO YOU AND YOUR EAR PREFERENCE, BUT THE MORE DRAMATIC THE MUSIC, THE MORE THIS PROGRAM WILL PERFORM.

I HAVE ONLY LISTED THE THREE MOST SIGNIFICANT PROGRAMS FROM THE NEWSLETTER, AND NOT REPRINTED ANY OF THE TEXT THAT ORIGINALLY ACCOMPANIED THE PROGRAM LISTINGS. FOR THE COMPLETE STORY, AND HOPEFULLY MORE TO FOLLOW, CONTACT RYTE DATA AND GIVE THEM A TRY FOR A ONE YEAR SUBSCRIPTION. THEY DO HAVE THE BACK ISSUES ON FILE FOR SUBSCRIBERS ONLY.

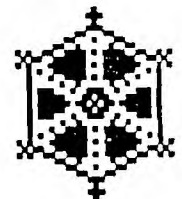


```

0001 *****
0002 *      SOUND ANALYZER 3      *
0003 *                               *
0004 * R/D COMPUTING NEWSLETTER *
0005 *                               *
0006 * RYTE DATA  Vers. 1.10/11 *
0007 *                               *
0008 *****
0009
0010 * Allows freezing of the
0011 * screen by pressing the
0012 * FUNCTION key
0013
0014
0015      DEF RUN
0016 RUN  LI 2,>40
0017 A    LI 0,>300
0018      MOVB 2,@>8C02
0019      SWPB 2
0020      MOVB 2,@>8C02
0021      SWPB 2
0022 B    LI 1,>1E00
0023      TB 27
0024      JNE C
0025      AI 1,>100
0026 C    MOVB 1,@>8C00
0027      DEC 0
0028      JNE B
0029 D    TB 7
0030      JNE D
0031      JMP A
0032      END
    
```

```

0001 *****
0002 *      AUDIO SPECTRUM ANALYZER *
0003 *      Bill Gronos July 1986   *
0004 *      (RYTE DATA - SEPT. 1986) *
0005 *                               *
0006 *      Makes a spectrum colored *
0007 *      wedge and modulates it with *
0008 *      sounds from the cassette   *
0009 *      recorder input.           *
0010 *****
0011
0012      DEF RUN
0013      REF VWTR,VSBW,VMBW
0014 RUN
0015      LI 0,>0701
0016      BLWP @VWTR
0017      LI 0,>800+768
0018      CLR 1
0019 BP1  BLWP @VSBW
0020      INC 0
0021      CI 0,>800+768+1280
0022      JL BP1
0023      LI 0,>380+4
0024      LI 1,>1100
0025      BLWP @VSBW
0026      BLWP @BARS
0027      LI 1,COLORS
0028      LI 0,>380+12
0029      LI 2,20
0030      BLWP @VMBW
0031      LI 3,>380+11
0032 IS1 CLR 2
    
```



```

0001 *****
0002 *   AUDIO SPECTRUM LIGHT SHOW   *
0003 *   Bill Gronos July 1986     *
0004 *   (RYTE DATA - SEPT. 1986) *
0005 *                               *
0006 *   Makes a spectrum colored  *
0007 * light show and modulates it  *
0008 * with sounds from the cassette *
0009 *   recorder input.             *
0010 *****
0011
0012     DEF RUN
0013     REF VWTR, VSBW, VMBW
0014 RUN
0015     LI 0, >0701
0016     BLWP @VWTR
0017     LI 0, >800+768
0018     CLR 1
0019 BP1   BLWP @VSBW
0020     INC 0
0021     CI 0, >800+768+1280
0022     JL BP1
0023     LI 0, >380+4
0024     LI 1, >1100
0025     BLWP @VSBW
0026     BLWP @BARS
0027     LI 1, COLORS
0028     LI 0, >380+12
0029     LI 2, 20
0030     BLWP @VMBW
0031     LI 3, >380+11
0032 IS1  CLR 2
0033 IS2  TB 27
0034     JEQ IS2
0035 IS3  INC 2
0036     TB 27
0037     JNE IS3
0038     SRL 2, 1
0039     MOV 3, 0
0040     LI 1, >100
0041     LIM1 2
0042 IS4  CLR @>83D6
0043     TB 2
0044     JNE IS4
0045     INC @ICOUNT
0046     C @ICOUNT, @IMAX
0047     JNE IS4
0048     CLR @ICOUNT
0049     LIM1 0
0050     BLWP @VSBW
0051     MOV @COLORS(2), 1
0052     MOV 2, 0
0053     AI 0, >380+11
0054     MOV 0, 3
0055     BLWP @VSBW
0056     JMP IS1
0057 IMAX DATA 1
0058 ICOUNT DATA 0
0059 COLORS BYTE 6, 8, 9, 11, 10, 3, 2, 12, 7, 5
0060     BYTE 4, 13, 14, 15, 6, 8, 9, 11, 10, 3

```

```

0061 BARS DATA BARWS
0062 DATA #+2
0063 LI 0, >200
0064 MOV 0, @IMAX
0065 CLR 1
0066 LI 2, 736
0067 LI 3, 32
0068 LI 7, >6000
0069 L1   MOV 1, 4
0070     BL @L3
0071     MOV 2, 4
0072     BL @L3
0073     AI 1, 33
0074     CI 1, 363 396
0075     JH DV
0076     AI 2, >FFE1 (-31)
0077     DECT 3
0078     AI 7, >800
0079     JMP L1
0080 L3   AI 4, >4000
0081     SWPB 4
0082     MOV 4, @>8C02
0083     SWPB 4
0084     MOV 4, @>8C02
0085     MOV 3, 6
0086 L2   MOV 7, @>8C00
0087     DEC 6
0088     JNE L2
0089     B *11
0090 DV   CLR 6
0091     LI 4, 32
0092     LI 3, 22
0093     LI 1, >6000
0094     LI 5, 33
0095     JMP DV2
0096 DV3  CI 6, 2
0097     JEQ END
0098     LI 4, 63
0099     LI 3, 22
0100     LI 1, >6000
0101     LI 5, 31
0102 DV2  MOV 4, 0
0103     MOV 3, 2
0104 DV1  BLWP @VSBW
0105     AI 0, 32
0106     DEC 2
0107     JNE DV1
0108     A 5, 4
0109     AI 1, >800
0110     DECT 3
0111     JNE DV2
0112     INC 6
0113     JMP DV3
0114 BARWS DATA 0, >6000, 20, 9, 4
0115     RSC 32

```



0116 END RTWP
0117 END

```

0033 IS2 TB 27 0094 CI 0,>380+12
0034 JEQ IS2 0095 JNE CL1
0035 IS3 INC 2 0096 RTWP
0036 TB 27 0097 BARWS
0037 JNE IS3 0098 DATA 0,>6000,20,9,4
0038 SRL 2,1 0099 BSS 22
0039 MOV 3,0 0100 FREQS TEXT '5000CS1000CS500CSZ'
0040 LI 1,>100 0101 TITLE TEXT 'THE BILL GRONOS SOUND SHOW'
0041 LIM1 2 0102 END
0042 IS4 CLR @>83D6
0043 TB 2
0044 JNE IS4
0045 INC @ICOUNT
0046 C @ICOUNT,@IMAX
0047 JNE IS4
0048 CLR @ICOUNT
0049 LIM1 0
0050 BLWP @VSBW
0051 MOVB @COLORS(2),1
0052 MOV 2,0
0053 AI 0,>380+11
0054 MOV 0,3
0055 BLWP @VSBW
0056 JMP IS1
0057 IMAX DATA 1
0058 ICOUNT DATA 0
0059 COLORS BYTE 6,8,9,11,10,3,2,12,7,5
0060 BYTE 4,13,14,15,6,8,9,11,10,3
0061 BARS
0062 DATA BARWS
0063 DATA $+2
0064 BARS1 MOV 4,5
0065 MOV 3,0
0066 BARS2 BLWP @VSBW
0067 INC 0
0068 DEC 5
0069 JNE BARS2
0070 AI 1,>800
0071 INC 4
0072 AI 3,32
0073 DEC 2
0074 JNE BARS1
0075 LI 0,2
0076 LI 1,FREQS
0077 LI 2,6
0078 BLWP @VMBW
0079 LI 0,290
0080 LI 1,FREQS+6
0081 BLWP @VMBW
0082 LI 0,547
0083 LI 1,FREQS+12
0084 DEC 2
0085 BLWP @VMBW
0086 LI 0,707
0087 LI 1,TITLE
0088 LI 2,26
0089 BLWP @VMBW
0090 LI 0,>380+6
0091 LI 1,>F100
0092 CL1 BLWP @VSBW
0093 INC 0

```



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