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Define the Commodore 64 sprite

The Commodore 64 manual shows how to define one type of sprite at a time using sprite memory area 13 (locations 832 to 894). Three other sprite areas are easily available:

Area 11 locations 704-766

Area 14 locations 896-958

Area 15 locations 960-1022

These can be used in the same way as area 13 by POKEing 2040-2047 with the numbers 11, 14 or 15 and poking data into the corresponding locations. This will let you have four sprites on screen at once.

Two other useful locations are 56321 and 56320. These are joystick ports one and two and can be PEEKed to find their value.

Simon Gardener,
Newport, Gwent

Avoid the BBC bug

Using 'impudged' characters on the BBC can cause a difficult bug. When you boot the machine or execute 'FX 20.0', the character definitions are 'impudged', that is there is room for 32 user defined character definitions stored a &C00 onwards. Any user defined character (that's with a code greater than 128) will appear four times in the character set. For example, if you define ASCII &E0 (224), the same character will appear at codes &80, &A0, &60 as well as &E0.

All this is in the manual but it omits to say that if you print a character on the screen and then re-examine it, it is the lowest of the four codes that gets returned. So, if you print a 224 on the screen and then

re-examine it, the BBC returns 128!

This presumably happens because the BBC searches through the character definitions from the first character onwards and returns the code of the first match it finds. Neither the hard or soft resets alter the character definitions, so this can cause other problems.

If you run a program that uses 224 as a block character and then run a program that uses 230 for a similar block, without altering 224, any attempt to read back the code for the character will result in ASCII 224 and not 230.

Once you are aware of what happens, bugs caused by this are easy to spot. But as a general rule, if you are using 'impudged' characters, clear the buffer from &C00 to &CFF before use and remember to check for the lowest of the four possible codes.

David Abbot,
Horsham, Sussex

Take a break on the Epson HX20

Epson HX-20 programmers may find it useful to disable the break key during a program. This crude technique disables the whole keyboard by altering the keyboard interrupt vector to point to a 'Return from Interrupt' instruction.

These subroutines should suffice. Remember to enable the keys before an INPUT or ending the program. Or else, it's back to the reset key.

Elizabeth Wald,
Southampton

```
10 POKE&H116,&H90:POKE&H
117,&HEB:RETURN:'DISABLE
KEYBOARD
20 POKE&H116,&HEF:POKE&H
117,&SH49:RETURN:'ENABLE
KEYBOARD
```

Dragon recollections

A useful editing feature is available on the Dragon that isn't listed in the manual. If you make a mistake while editing a line, just press Shift and ↑ together, then press the A and ENTER keys. This recalls the line as it was before you edited it.

FR Ellahi,
Halifax, West Yorks

Oric sounds fantastic

S Hammet, PCN Microwaves issue 21, gave some useful addresses for sound on the Oric 1. This program provides access to the useful subroutine at #FA6C.

After loading the machine code, the program asks for numbers in the range 0-255. These are loaded into the Y and X registers respectively and provides a total of over 65,000 possible sounds.

I have not found a coding for which numbers produce particular sounds so you will have to experiment yourself. Some of the sounds I've heard are helicopters, sirens, guns, explo-

sions, pure tones, all colours of noise and lots of others although some values produce no sound or just can't be heard.

Some of the better sounds I have found are:

Y register	X register
#FC	#0F
#FC	#2A
#FC	#2A
#FC	#82
#FC	#A9
#FC	#B9
#FC	#EC
#FC	#F7
#FD	#0B

I presume that ZAP, PING and SHOOT must have codes for this routine but have yet to find them. Happy hunting!

Martin Wolff,
Bromley, Kent

```
10 FOR I=#A000 TO #A007
20 READ A$: A$="#"+A$:#A=VAL(A$)
30 POKE I,A
40 NEXT I
50 DATA A0,00,A2,00,20,6C,FA,60
60 INPUT "Values for Y and X":Y,X
70 POKE #A001,Y:POKE #A003,X
80 CALL #A000
90 GOTO 60
```

Dragon's key to continue

A 'PRESS ANY KEY TO CONTINUE' pause on the Dragon is usually handled using the INKEYS function. Unfortunately, this will halt the program if BREAK is pressed. A better method is to call the ROM routine at 41194. So you could use a line like: 1000 PRINT "PRESS ANY KEY TO CONTINUE": EXEC 41194.

This call will flash the cursor until a key is pressed.

John Buckley,
Salford, Manchester

C=CA. With these patches and a simple build file, you could even have quite a presentable disk.

DJ Owen,
Henley-on-Thames

Newbrain shortcut

Location 43 on an unexpanded Newbrain contains KBMODE. POKEing 1 into this location will be just like Control & 1 from the keyboard. From a keyboard device is open (5 or 6), a much neater way is simply to PUT (device number), 1 to force CAPS LOCK.

Dave Gunthorpe,
Birmingham B16

Tandy logo banished

The Tandy logo can be a bit tiring everytime you boot up a Model II. To remove it, just type: PATCH SYSRES/SYS A=24D3, F=00, C=3B. Similarly, if you don't want to re-enter the time, use: PATCH SYSRES/SYS A=2390, F=0A, C=39. You can lose the time and date with: PATCH SYSRES/SYS A=2367, F=73,

Commodore DOS

Commodore 64 owners with the 1541 disk drive will rapidly tire of having to use the demo disk every time they want to use the DOS wedge. The following sequence of commands allows the machine code to be saved: POKE 44,204: POKE 43,0: POKE 46,207: POKE 45,89: SAVE "DOS 5.1". 8,1

Tim Arnott, Southsea, Hants