

top of the figure is set at approximately mid screen (128). Line 50 sets the player horizontal position to 128 (about mid screen). The WAIT 160% gives you time to look at it. Note that you must go around the CODE command. If the BASIC runs into the CODE command, the system will probably crash, and you will have to reload it. Note that the system waits until the vertical blank interrupt to insert the data into a player or missile.

You might recognize the fact that the & symbol tells the system that the following data is in binary. If you know hex, you can convert binary to hex and save some typing, plus squeeze more into a line. However, compiled code length is the same. Note that in a CODE statement, hex numbers do not need to be preceded by any special symbol. The following is how line 100 looks with hex numbers:

```
100 CODE"4,FF,81,81,FF"
```

You can move a player or missile with a series of HPOS or PDISPLAY commands. Also the system has a built-in mechanism for automatically moving a player or missile, and even for automatically changing the figure.

I should mention that PDISPLAY places the figure into the player or missile at the specified vertical location. It does not erase the rest of the player or missile. So, if you are moving a player vertically, you need to erase the part of the figure which is not overwritten. One way to do this is to put extra blank lines on the top and bottom of the figure. For example, you can define the box in the previous program with the following line. The length of the player is changed from 4 to 8. Note that you don't need to use a & symbol for a blank line; a zero will do:

```
100 CODE"8,0,0,&11111111,&10000001,&10000001,&11111111,0,0"
```

The following example will move the box across the screen from the upper left to the lower right. Note that each time the figure is put into player 1, it will erase the previous figure:

```
10 PSETCOLOR 1%,3%,8%
20 PSIZE 1%,0%
30 GRAPHICS 67%
35 DFILL 1%,0%
40 FOR T%=0% TO 240% STEP 2%
50     PDISPLAY 1%,ADR(100),T%
60     HPOS 1%,T%
70 NEXT T%
80 END
100 CODE"8,0,0,FF,81,81,FF,0,0"
```

#### DFILL

DFILL (described in Ch.13) was used in line 35, above, to clear the player. Filling a player-missile with 1% turns on only the first point on the right. Filling with 2% turns on the second point, 4% the third point, 8% the fourth point, etc. You can add together the numbers shown above to turn on groups of data points. For example, DFILL 1%,3% will turn on the first two data points on the right and turn off the others for player 1. The net effect is a vertical bar one quarter the width of the player.