

Reference: vid.c file in BOOK

1. font0 is a font file of ASCII chars, from 0 to 127, each char = 16 bytes.

```
font0 = | 16-byte | 16-byte | ..... | 16-byt |
ASCII   0         1         127
```

Each char is a 16 x 8 bitmap: in which a 1-bit means WHITE pixel
..... 0-bit means BLACK pixel
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1) The 480x640 VGA screen can display

HOW MANY rows of char?

$480/16 = 30$ rows

HOW MANY chars per row?

$640/8 = 80$ columns

2) Explain: How is an ASCII char c displayed at (row, col) = (x, y)?

HELP: read the code of dchar() and setpix()

Dchar() finds the location of the char's first byte. It gets stored in address. Then load the bytes by incrementing address by one. Setpix() is called when a 1 bit is found, and will find its pixel address at (x, y) and set its color.

3) How to scroll the screen UP by one row?

Assign fb[1] to fb[i = 640 * 16] for every i < (640 * 480 - 640 * 16).