Homework #5  
Due: 07/28/2003

1) (5 points) What is the first memory address read by an 8088 after RESET?

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2) Given the following hard drive specifications:
   5400 RPM
   13.3 ms average seek time
   16383 cylinders
   63 sectors
   512 Bytes per sector
   2 Read/Write heads

   a) (5 points) How many platters are in this drive?

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   b) (10 points) What is the calculated data throughput per second?

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   c) (10 points) What is the calculated average latency for this device?

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   d) (10 points) How much storage is on this device?

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3) (40 points) Using the DOS BIOS functions via INT 10h, write a complete procedure to display a solid rectangle on the screen in mode 13h. Expect the following 1-byte parameters to be passed on the stack:

- Xcoord ; the x coordinate of the upper left corner of rectangle.
- Ycoord ; the y coordinate of the upper left corner of rectangle.
- Length ; the horizontal measurement of the rectangle.
- Height ; the vertical measurement of the rectangle.
- Color ; a number representing the color of the rectangle.

Please include code to set and reset the proper video mode.
4) (20 points) You have just performed a disk write from memory operation (INT 13h, Fcn 03h) and the result is CF=1. Write a procedure that determines the error type in the list below and makes a jump to the appropriate error handler code at the procedure listed. You may assume that the handler routines are “near”. You may wish to reference this web page: [http://www.clipx.net/ng/masm/nga9588.php](http://www.clipx.net/ng/masm/nga9588.php) for details on INT 13h’s error codes.

<table>
<thead>
<tr>
<th>Error</th>
<th>Handling Proc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drive Not Ready</td>
<td>dnr_handler</td>
</tr>
<tr>
<td>Seek Failure</td>
<td>sf_handler</td>
</tr>
<tr>
<td>Attempt to Write on Write-Protected Disk</td>
<td>wpd_failure</td>
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