CIS 170 – Microcomputer Hardware.
Name: _________________________

TBA Assignment 4

Print this handout and bring to class.
From the lack of having enough peripherals for this course (at least at this point), we have the
necessity of doing some experiments mentally rather than physically. Alas! So this is what you will
do:

Configure the motherboard for a 486 DX-33 CPU.

**ISA-486 Setup**

The first step in installing the ISA-486 main board is to prepare the board by setting the jumper switches and attaching the various
connectors. If the main board has already been installed this chapter will be helpful if you make a change to the system. This chapter
does not include the setup and instructions for the memory. The Memory chapter contains that information. If you are installing the
ISA-486 main board you should read the Memory chapter before proceeding.

**Jumper Switches**

Using jumper switches you can select between two modes of operation. The switches have three pins projecting up from the main
board. Placing the cap, which has a metal inside, over the two pins on the appropriate side of the switch makes a selection.

**Jumper with pins shorted**

There are two user-adjustable jumpers on the board: JP1 and JP2. See its location and the system case feature connectors marked on
the diagram below.
Jumper and connector locations
Power Good Source Selector Jumper JP1

Jumper JP1 selects the type of "Power Good" signal used. An onboard or an external power supply "Power Good" signal can be selected. The default setting is "EXT" for an external "Power Good" signal.

**JP1 Default setting**

You should leave JP1 on the default setting unless you know your power supply doesn't generate a "power good" signal. The majority of power supplies generate this signal.

The CPU Selector Switch

SW1 is a bank of six small DIP switches which allow the ISA 486 main board to be used with a variety of CPU’s. Follow the diagrams printed in the lower right corner of the board to determine the proper arrangement for the CPU you are using.

**CPU Selection switches**

<table>
<thead>
<tr>
<th>CPU Selection switches</th>
<th>486DX</th>
<th>486SX</th>
<th>487SX</th>
</tr>
</thead>
<tbody>
<tr>
<td>486DX</td>
<td>![486DX]</td>
<td>![486DX]</td>
<td>![486DX]</td>
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<tr>
<td>486SX</td>
<td>![486DX]</td>
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<td>487SX</td>
<td>![487SX]</td>
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</tbody>
</table>

Set the switches according to which CPU is installed on the board.

Oscillator Type Selector Jumper JP2, JP3

Jumper JP2 and JP3 select the type of Oscillator used. The options in JP2 are SF(Single Frequency) or DF(Dual Frequency), the Options in JP3 are 50(50MHz) or 25/33(Others Frequency). The Settings are illustrated below.

<table>
<thead>
<tr>
<th>CPU Frequency</th>
<th>OSC Frequency</th>
<th>JP3</th>
<th>JP2</th>
</tr>
</thead>
<tbody>
<tr>
<td>50MHz</td>
<td>![50MHz]</td>
<td>![50MHz]</td>
<td>SF</td>
</tr>
<tr>
<td>33MHz</td>
<td>![33MHz]</td>
<td>![33MHz]</td>
<td>DF</td>
</tr>
<tr>
<td>25MHz</td>
<td>![25MHz]</td>
<td>![25MHz]</td>
<td>SF</td>
</tr>
<tr>
<td>20MHz</td>
<td>![20MHz]</td>
<td>![20MHz]</td>
<td>SF</td>
</tr>
<tr>
<td>16MHz</td>
<td>![16MHz]</td>
<td>![16MHz]</td>
<td>SF</td>
</tr>
</tbody>
</table>

For the purpose to improve reliability of 486-50 MHz CPU operation, there is a new Jumper (JP3) on the ISA-486 Rev1.4. Rev1.3 or earlier Version, you just need to set JP2 to select operation frequency.