

**HW1 DSP Review Applications Homework Spring 2015
A Fun Assignment**

DUE January 28, 2015

**Please turn in a typed, paper copy at the beginning of class when
the assignment is due.**

**READ SMITH CHAPTER 1 ON WEB
or Download**

1. Select **two** applications of Digital Signal Processing from the material discussed in class about Application Areas.

Describe the applications in one or two paragraphs. Be as detailed as you can. The more detail, the better your grade. However, do not add a lot of extra information cut from the web. (60 Points)

2. DSP algorithms have long been run on standard computers, on specialized processors called digital signal processor on purpose-built hardware such as application-specific integrated circuit (ASICs). Today there are additional technologies used for digital signal processing including more powerful general purpose microprocessors, field-programmable gate arrays (FPGAs), digital signal controllers (mostly for industrial apps such as motor control), and stream processors, among others.

Describe several processors such as the Microchip line of PICdsp processors. Do not give great details of the processor such as its bit length, etc. Describe its capabilities for DSP and possible applications (20 points)

3. **Compare the advantages and disadvantages of the following (10 points):**
Microprocessors with DSP capability
Special DSP chips such as the TI families
FPGAs and special purpose chips used for DSP

OK to use the WEB and even Wikipedia – however GIVE the REFERENCES! Also, if you use abbreviations and mnemonics, please define them in a Glossary – (10 points for references and Glossary.)