ASSIGNMENT 8: CPU Research Project

out: Fri Nov 7 due: Fri Nov 14

Introduction

In this assignment, you will find data on a particular microprocessor (of your own choosing), and write a research report about it. Details about what information should be included in the report are described below.

Each student must choose a different CPU. The method for ensuring this is described below.

Details

Find a CPU design you are interested in learning and writing about. The only constraints on the choice of design are (1) Intel Pentium x86 architectures and its workalike competitors by AMD and Cyrix are not allowed; (2) you must be able to locate useful information about the chip, and (3) no other student may have already selected it.

Choose a specific CPU design by a particular vendor and locate the PDF data sheet for the chip you have selected. Now, claim this chip for your own by making a posting to the "Assignment 8 CPU Claim" thread on the *ikonboard* site (linked from the course home page). *Your claim posting must include (1) the CPU manufacturer name, (2) the full part number, and (3) a URL link to the PDF data sheet.* It would make sense to read through the latest postings before doing your search; also, as should be evident, the earlier you get started, the easier the pickin's.

Suggested Manufacturers

You may be interested in the offerings of:

IBM, Motorola, Microchip Technology, Dallas Semiconductor, Hitachi, Intel (not Pentium series), Maxim, Siemens, Hewlett-Packard, Philips, Atmel, Texas Instruments, Sanyo, Sharp

This is not intended to be an exhaustive list!

Report

Your report on the CPU should include the following:

• A written introduction to the chip. What are its special features? What market or applications is it intended for?

• The manufacturer's name, chip part number, and URL link to the PDF data sheet.

• The following technical details:

– how many bits wide is the address bus (& how much memory can be accessed)
– how many bits wide is the data bus
– maximum clock rate of the chip
– RISC-like or CISC-like design (or a combo of both?)

– how much internal RAM and/or ROM or other memory
– how many registers and what type
– is there a floating point unit, vector integer unit, or other special calculation hardware?
– are there microcontroller features (timers, counters, A/D, D/A, etc.)?

• How much does the chip cost (and in what quantity), or, is it an obsolete/out-of-production design? (Find costs by following manufacturer's links to distributors and representatives.)

• Anything else you find interesting or different about your chip.

• Include the first 3–5 pages of the data sheet with your report.