Developing Software for Embedded Systems*

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- Handyboards have been distributed -- Welcome to the world of programming embedded systems!
- Embedded system
  - Computer hardware, software, other parts designed to perform a specific function
  - Component within larger system - in cars, air/spacecraft
- Embedded software in almost every electronic device
  - Watches, VCRs, cellular phones, microwaves, thermostats
  - In US, ~8 μprocessor-based devices for every person
- Each embedded system is unique, with specialized hardware and specialized software

*Reference: "Programming Embedded Systems," by Michael Barr, in A/A Library

Developing Software for Embedded Systems

- Steps involved in preparing embedded software similar to general programming
  - Follow five steps in Software Design Process
  - Use Spiral Model
  - Decide on programming language (C)
  - Know capabilities/limitations of processor/compiler
- Main difference is that target hardware platform is unique
  - Leads to additional software complexity
  - Software Engineer must be aware of software build process

Embedded Software Development Process

- Software Development is performed on a Host computer
  - Compiler, Assembler, Linker, Locator, Debugger
  - Produces executable binary image that will run on Target Embedded System