Embedded Software development
Process and Tools:

Lesson-3
Host and Target Machines
1. Host-Target Based Development Approach
Host-Target System Development Approach

- During development process, a host system is used
- Then locating and burning the codes in the target board.
- Target board hardware and software later copied to get the final embedded system
- Final system function exactly as the one tested and debugged and finalized during the development process
2. Host System
Host system at PC or workstation or laptop

- High performance processor with caches, large RAM memory
- ROMBIOS (read only memory basic input-output system)
- very large memory on disk
- keyboard
- display monitor
- mice
- network connection
Host system at PC or workstation or laptop...

- Program development kit for a high level language program or IDE
- Host processor compiler and cross compiler
- Cross assembler
2. Program Development Tool Kit at host
Program Development Tool Kit

- Program development tool kit or IDE
- Editor—used for writing C codes or assembly mnemonics or C++ or Java or Visual C++ using the keyboard of the host system (PC) for entering the program.
- Using GUIs for allowing the entry, addition, deletion, insert, appending previously written lines or files, merging record and files at the specific positions.
Program Development Tool Kit…

- Create source file that stores the edited file.
- File given an appropriate name by the programmer.
- Can use previously created files.
- Can also integrate the various source files.
- Can save different versions of the source files.
Program Development Tool Kit…

- Compiler, cross compiler, assembler, cross assembler, …
2. Target System
Target System Board

Diagram showing:
- 8051 microcontroller
- Flash memory
- RAM
- Port Interfaces
- Target System Keypad
- Target system Display
- RS232C or USB port
- Development host
- For software test and debug

Sophisticated Target System

Diagram:

- ARM CORTEX-M3 Microcontroller Core
- Monitor RAM Flash Memory
- SDIO, USB, SPI, MMI card, Port Interfaces
- APB
- Development host
- PC
Target and final systems .. .

- Target system differs from a final system.
- Target system interfaces with the computer as well works as a standalone system.
- In target system might be repeated downloading of the codes during the development phase.
Target and final systems .. .

- Target system copy made that later on functions as embedded system
- Designer later on simply copies it into final system or product.
- Final system may employs ROM in place of flash, EEPROM or EPROM in embedded system.
2. Target System Examples
Sophisticated ARM base System Targets

Phillips LPC 21xx development board

ARM Powered STR710 ARM MCU System Development Board
Summary
We learnt

- Host system and software development tools used in developing, testing and debugging the embedded software in development process
End of Lesson-3 of chapter 13 on Host and Target Machines