

Embedded Software development Process and Tools:

Lesson-3

Host and Target Machines Based Development Approach

Host-Target Based Development Approach

Host-Target System Development Approach

- Host system used in development process
- Codes tested, debugged and finalized during the development process
- Codes located and burned at target board.
- Target board hardware and software later copied– Final embedded system
- Final system function exactly as Target

Host and Target Test Systems During Development Process

- Two systems with different CPUs or microcontroller and hardware architecture.
- One system— host, generally PC or laptop or workstation.
- Other system —target, actual hardware for the embedded system under development

1. Host

Host system at Workstation or Desktop or Laptop

- High performance processor with caches, large RAM memory
- ROMBIOS (read only memory basic input-output system)
- Very large memory on hard disk
- Keyboard
- Display monitor
- Mouse
- Network connection

2. Program Development Tool Kit at host

Host system at Workstation or Desktop or Laptop

- Program development kit for a high level language program or IDE
- Host processor compiler and cross compiler
- Cross assembler

Program Development Tool Kit...

- Compiler, cross compiler, assembler, cross assembler, ...

Program Development Tool Kit

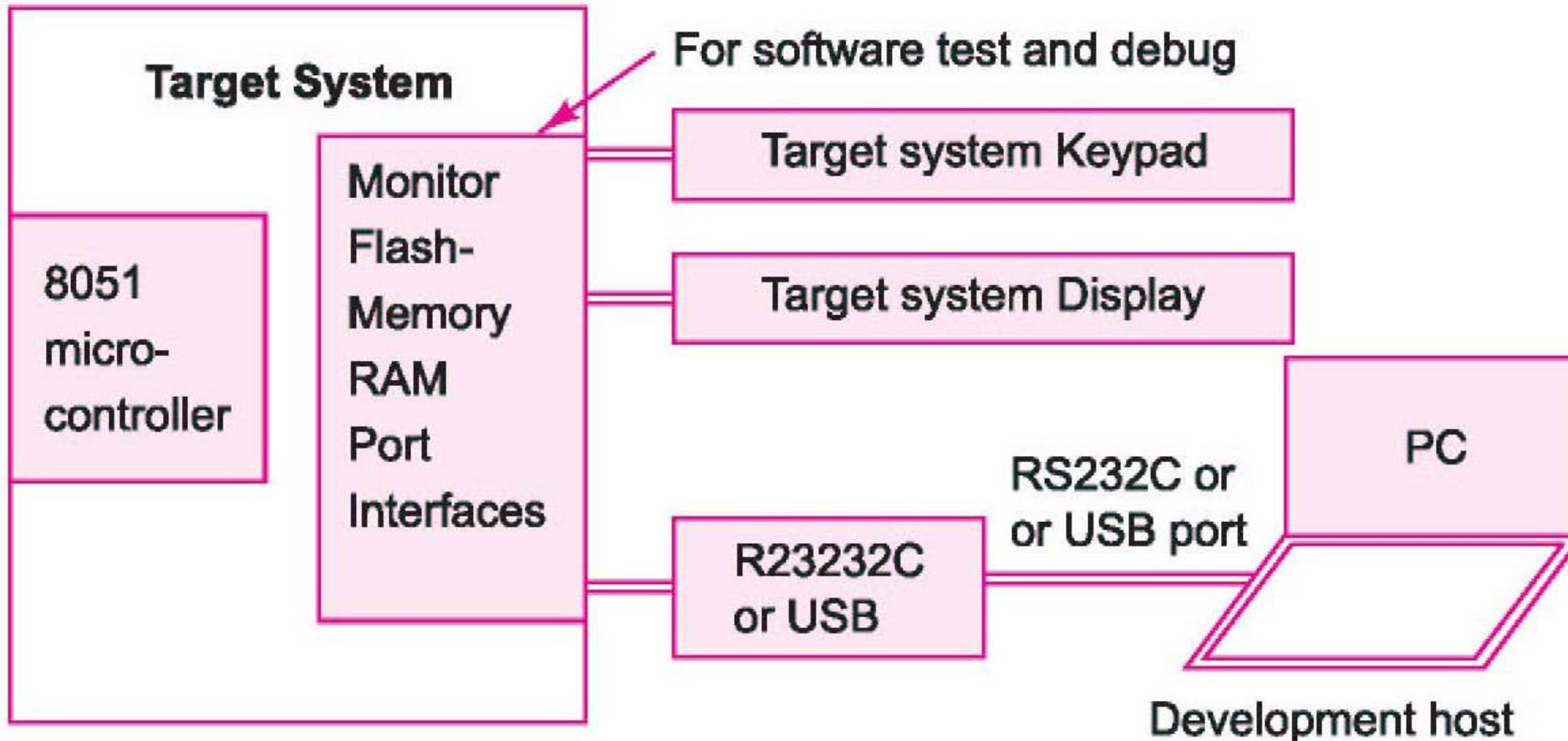
- Program development tool kit or IDE
- Editor— used for writing C codes or assembly mnemonics or C++ or Java or Visual C++ using the keyboard of the host system (PC) for entering the program.
- Using GUIs for allowing the entry, addition, deletion, insert, appending previously written lines or files,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

Program Development Tool Kit...

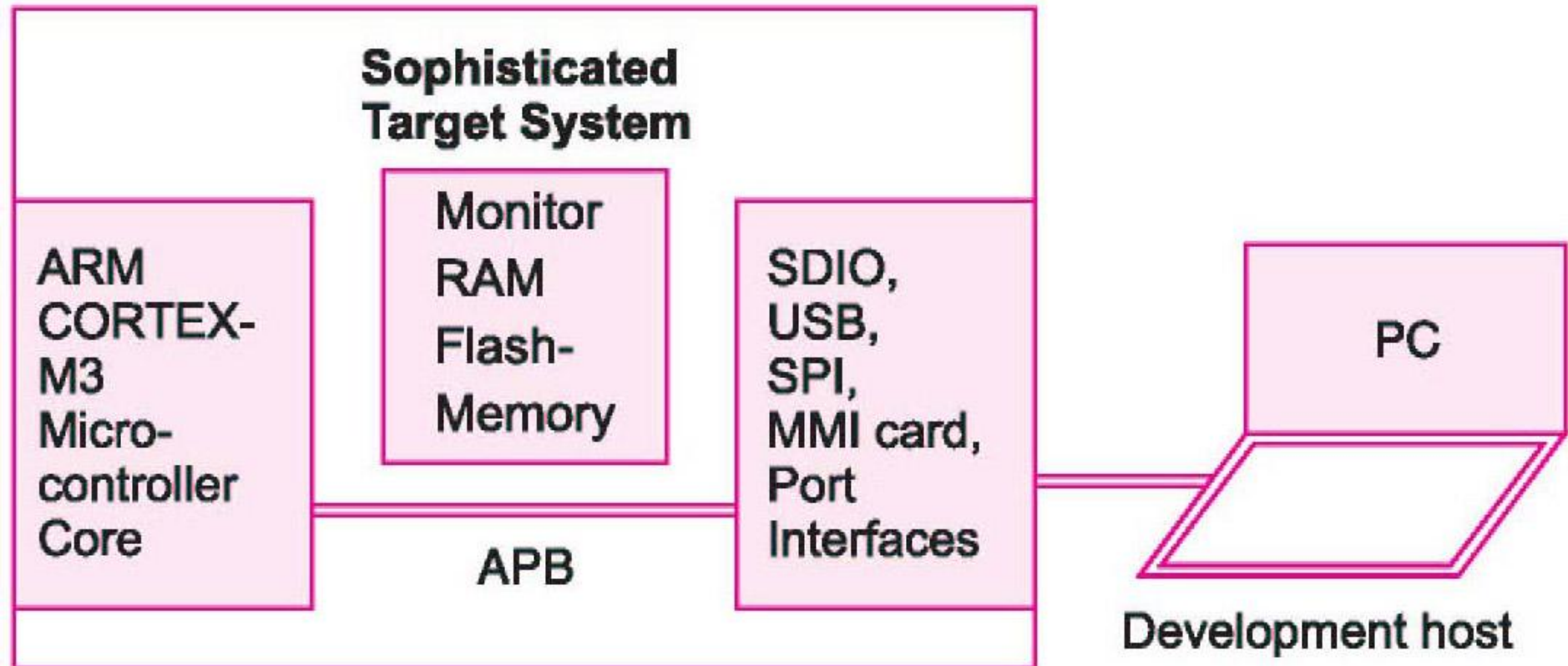
- Create source file that stores the edited file.
- File given an appropriate name by the programmer
- Can use previously created files
- Can also integrate the various source files.
- Can save different versions of the source files.

3. Target System

Target System Board



Sophisticated Target System



Target and final systems . . .

- Target system differs from a final system
- Target system interfaces with the computer as well works as a standalone system
- Target system repeated downloading of codes in development phase.

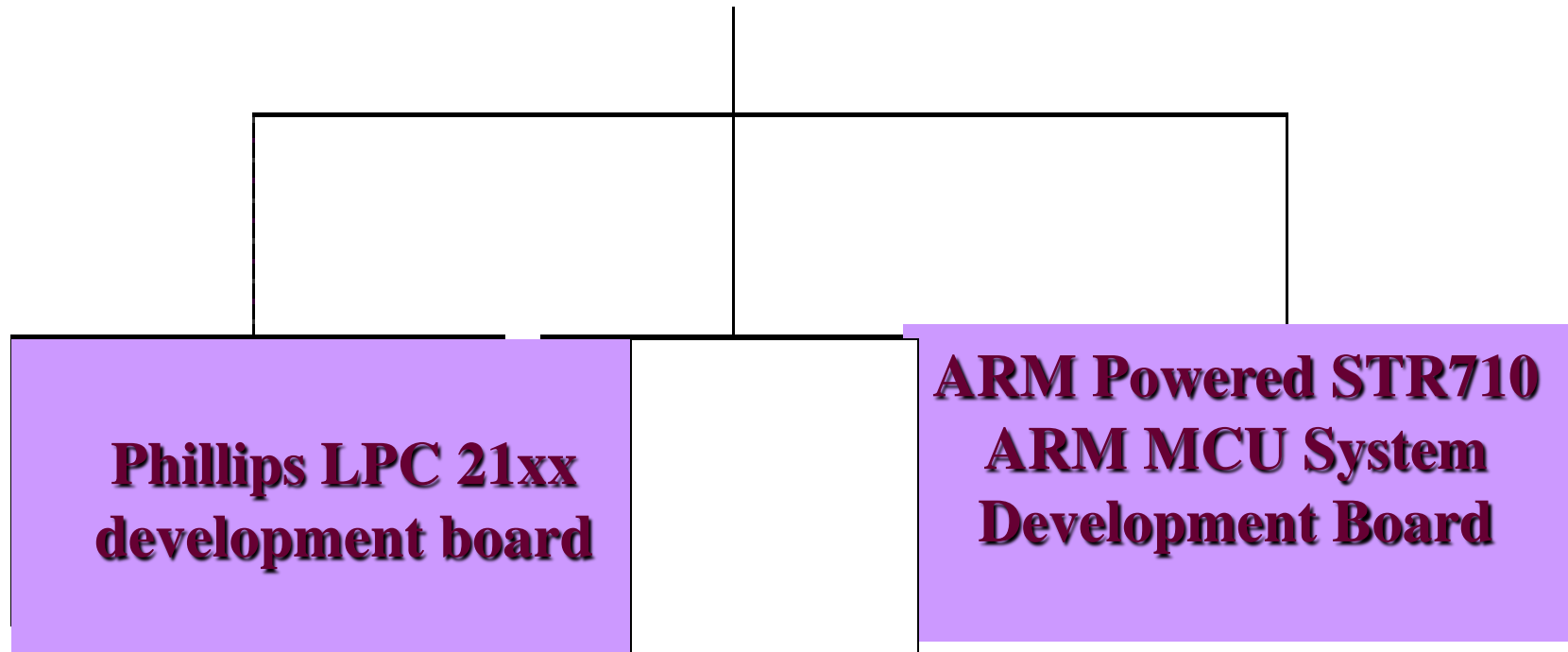
Target and final systems . . .

- 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.

4. Target System Examples

Sophisticated ARM base System Targets ^(a)

Sophisticated Target System Examples



**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 14 on Host and Target Machines Based Development Process