Embedded Software development Process and Tools:

Lesson-2

Integrated Development Environment (IDE)

IDE

Consists of

- Simulators
- editors,
- compilers,
- assemblers,

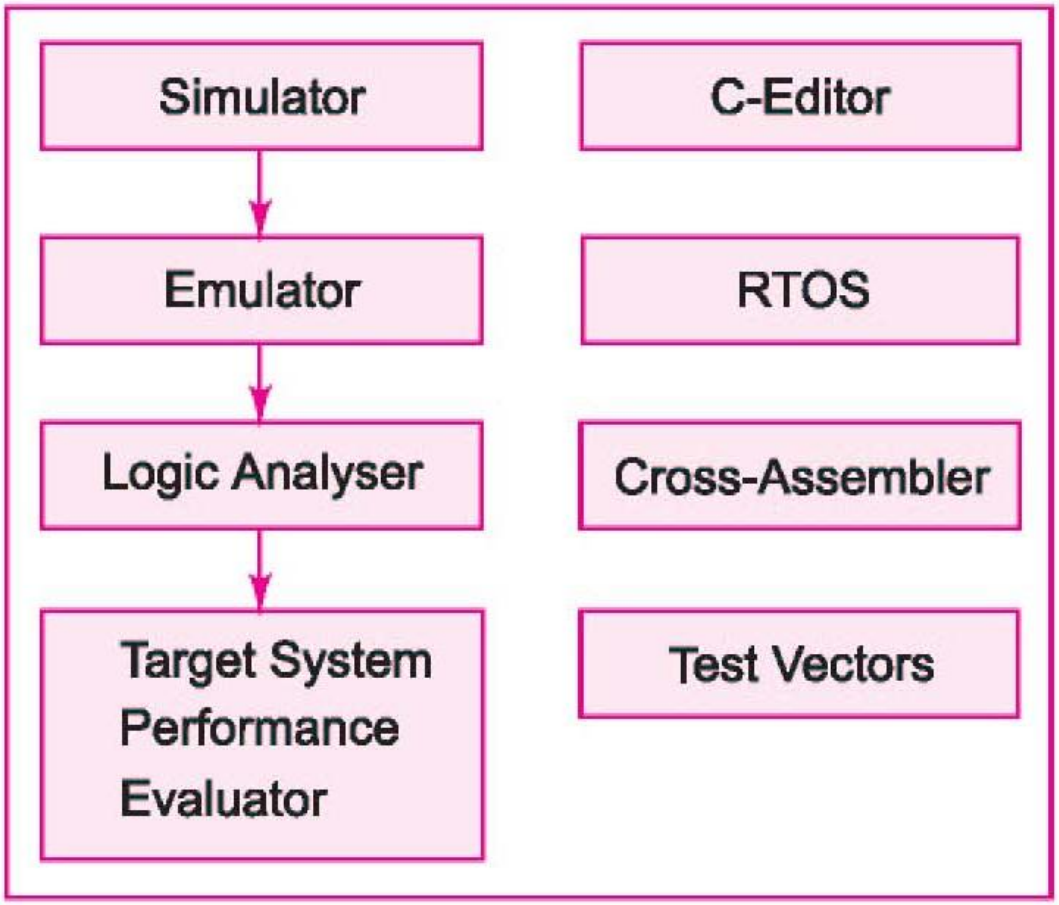
IDE…

- emulators
- logic analyzers
- EPROM/EEPROM application codes burner

IDE…

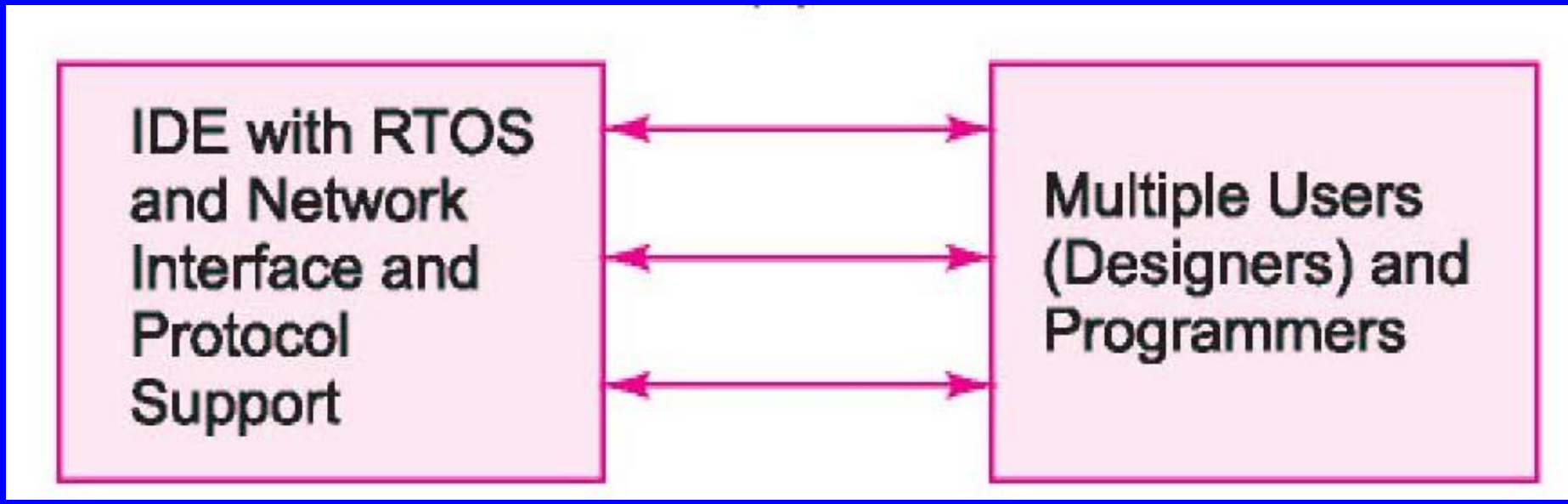
- Facility for defining a processor family as well as defining its version.
- Includes source code engineering tools that incorporate the editor, compiler for C and embedded C++,
- Assembler, linker, locator, logic analyser, stethoscope, and help to use
- Optimizes the use of memory

Simple IDE



IDE for Various types and Versions of Microcontroller with Upgradability of IDE for future Versions.

Sophisticated IDE



IDE…

Provides Windows on the screen for the detailed information of ─

- source code part with labels and symbolic arguments,
- registers as the execution continues,
- status of peripheral devices,
- status of RAM and ports,
- status of stack and program flow as it continues

IDE…

- Verifies the performance of a target system that an emulator built into the development system, which remains independent of a particular targeted system,
- Includes a logic analyzer for up to 256 or 512 transactions on the address and data buses after triggering

IDE…

- Simulates on a host system (PC), the hardware unit like emulator, peripherals, and I/O devices.
- Supports conditional and unconditional breakpoints.
- Debug by single stepping.
- Facilitate for synchronizing the internal peripherals

IDE…

- Facility of a user-definable assembler to support a new version or type of processor.
- Provision of a multi-user environment.
- Design process divisibility into a number of sub parts.
- Each programmer assigned independent but linked tasks

RTOS in IDE

- tasks, queues, semaphores and IPC objects.

RTA in IDE

- Real-Time Analysis (RTA) suite profiles the code coverage and locates runtime errors.

2. IDE Examples

IDE Example

- IDE from Keil μVision 2 with RTX51 for 8051 family of microcontrollers
- IDE from Keil μVision 3 RTX51 for ARM family of processors and microcontrollers

Summary

We learnt

- System implementation and integration using program development kit, source code engineering tool and IDE.
- Prototype development tools
- IDE (Integrated Development Environment) used to develop the fully simulated, tested and debugged sophisticated embedded systems with simpler efforts.

End of Lesson-2 of chapter 14 on
Integrated Development Environment

Summary

We learnt

We learnt

End of Lesson-2 of chapter 14 on IDE