

Embedded Software development Process and Tools:

Lesson-2 Integrated Development Environment (IDE)

1. IDE

IDE

Consists of

- Simulators
- editors,
- compilers,
- assemblers, etc.,

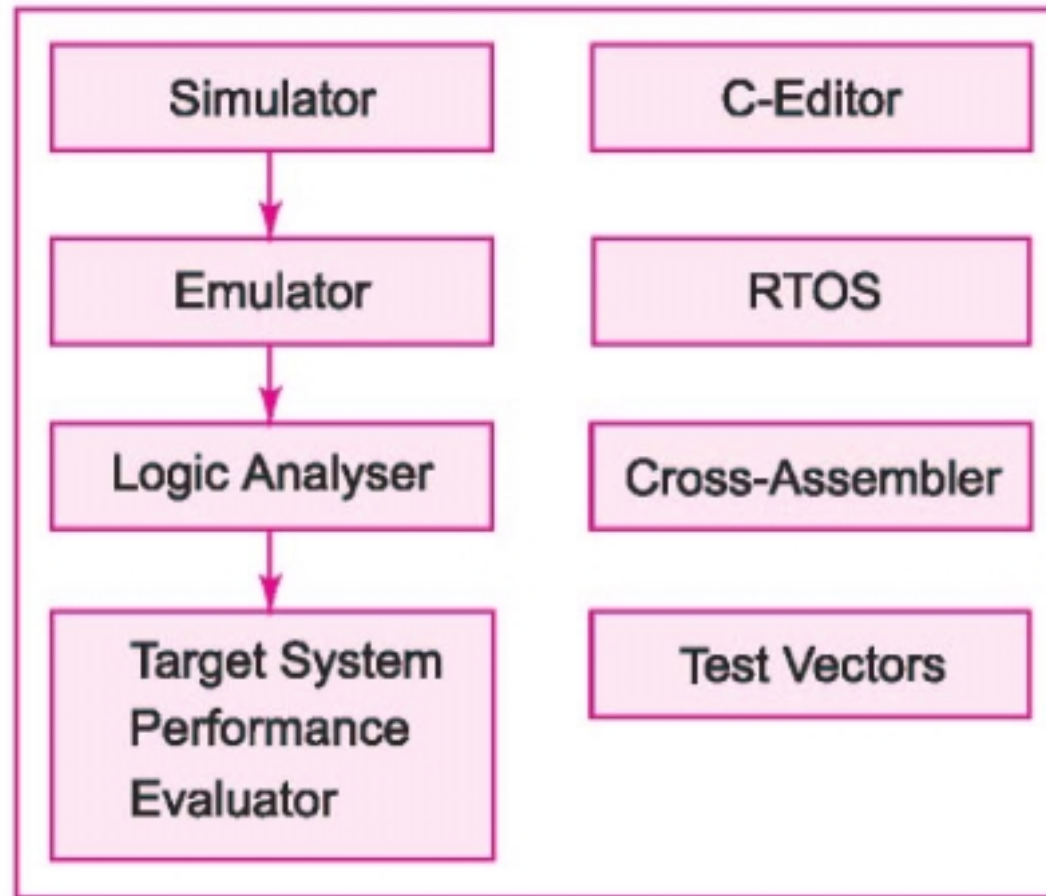
IDE...

- emulators
- logic analyzers
- EPROM/EEPROM application codes burner.
- Provides an integrated development environment

IDE...

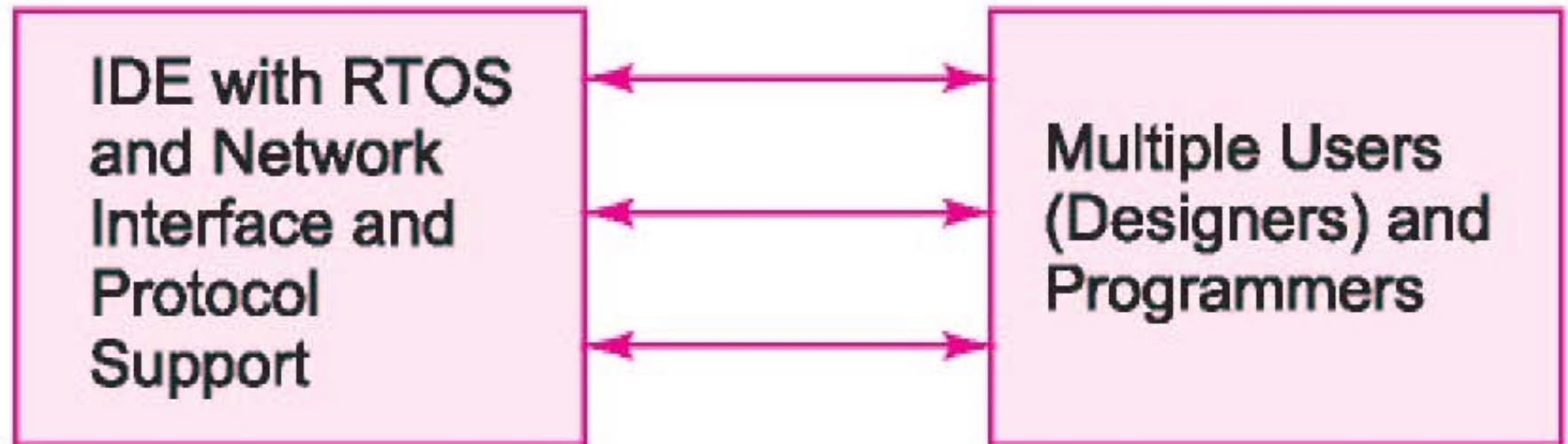
- Facility for defining a processor family as well as defining its version.
- Includes source code engineering tools that incorporate the editor, compiler for C and embedded C++,
- Assembler, linker, locator, logic analyser, stethoscope, and help to use
- Optimizes the use of memory
-

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 μ Vision 2 with RTX51 for 8051 family of microcontrollers
- IDE from Keil μ Vision 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 13 on Integrated Development Environment