

x86 Assembly

This book covers assembly language programming for the x86 family of microprocessors. The objective is to teach how to program in x86 assembly, as well as the history and basic architecture of x86 processor family.

When referring to x86 we address the complete range of x86-based processors (since the original Intel 8086 in 1978). This includes:

- IA-32 assembly, also commonly referred to as x86-32 assembly (Intel architecture 32-bit, since the Intel 80386), a 32-bit extension of the original 16-bit Intel x86 processor architecture (used in Intel 8086 - 80286 CPUs). IA-32 has full backwards compatibility with the 16-bit x86.
- x86-64, also called the AMD64 or AMD 64-bit extension, backwards compatible with 32-bit code without performance loss.
- Intel 64, previously named IA-32e or EM64T, almost identical to x86-64.

Throughout the book these terms may be used interchangeably when appropriate. A special notice will be given when covering 16-bit, 32-bit or 64-bit architectures and on any limitations to limit confusion.

Note, that there is a separate 64-bit instruction set, the IA-64 (Itanium). It was meant to replace the x86 line, but did not gain as much popularity as anticipated, so this replacement did not occur.

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Resources

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