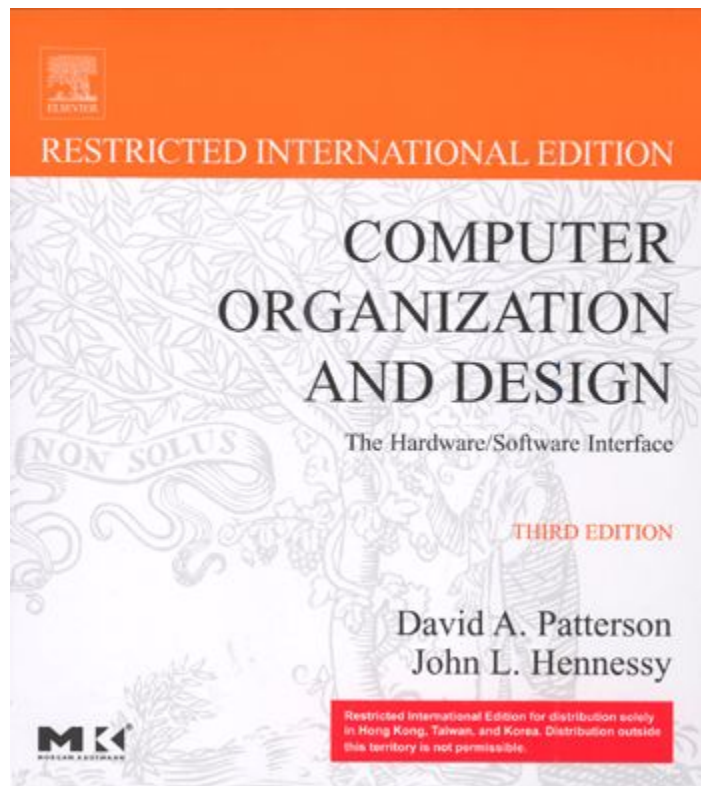




Computer Organization & Design

The Hardware/Software Interface



計算機組織與設計：軟硬體介面

1990

—

AMIBIOS System Configuration (C) 1985-1992, American Megatrends Inc.,

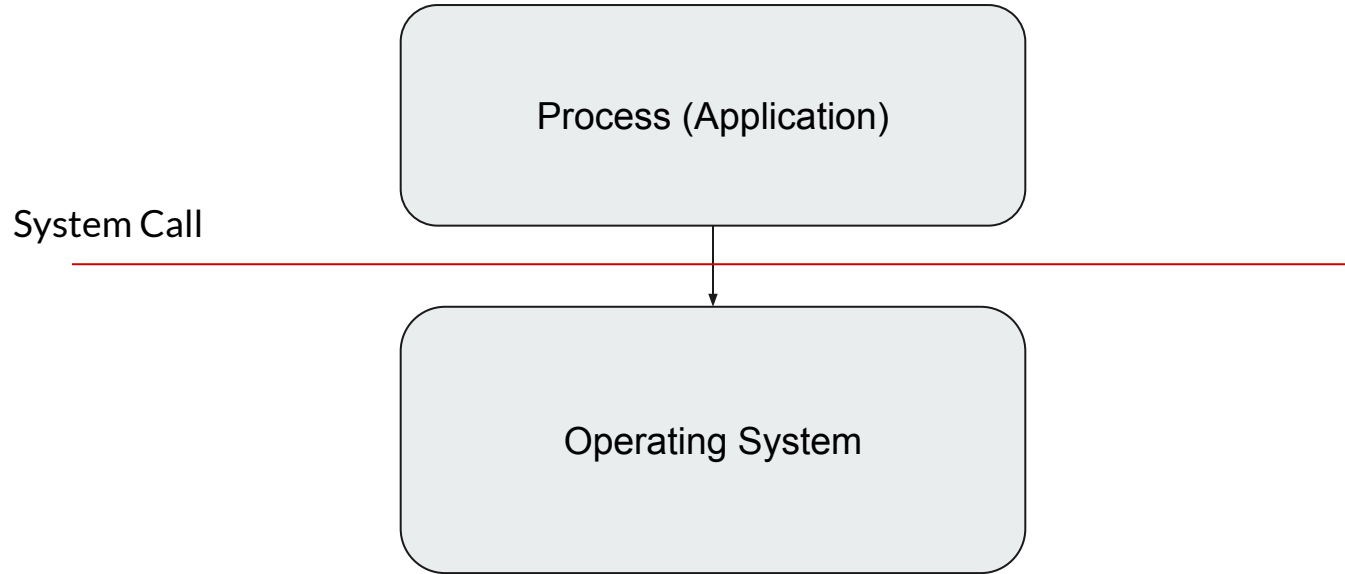
Main Processor	: 486DX or 487SX	Base Memory Size	: 640 KB
Numeric Processor	: Present	Ext. Memory Size	: 64512 KB
Floppy Drive A:	: 1.44 MB, 3½"	Hard Disk C: Type	: None
Floppy Drive B:	: None	Hard Disk D: Type	: None
Display Type	: UGA/PGA/EGA	Serial Port(s)	: 3F8,2F8
AMIBIOS Date	: 11/11/92	Parallel Port(s)	: 378

25MHz CPU Clock
Starting MS-DOS...

Microsoft DOS 6.22



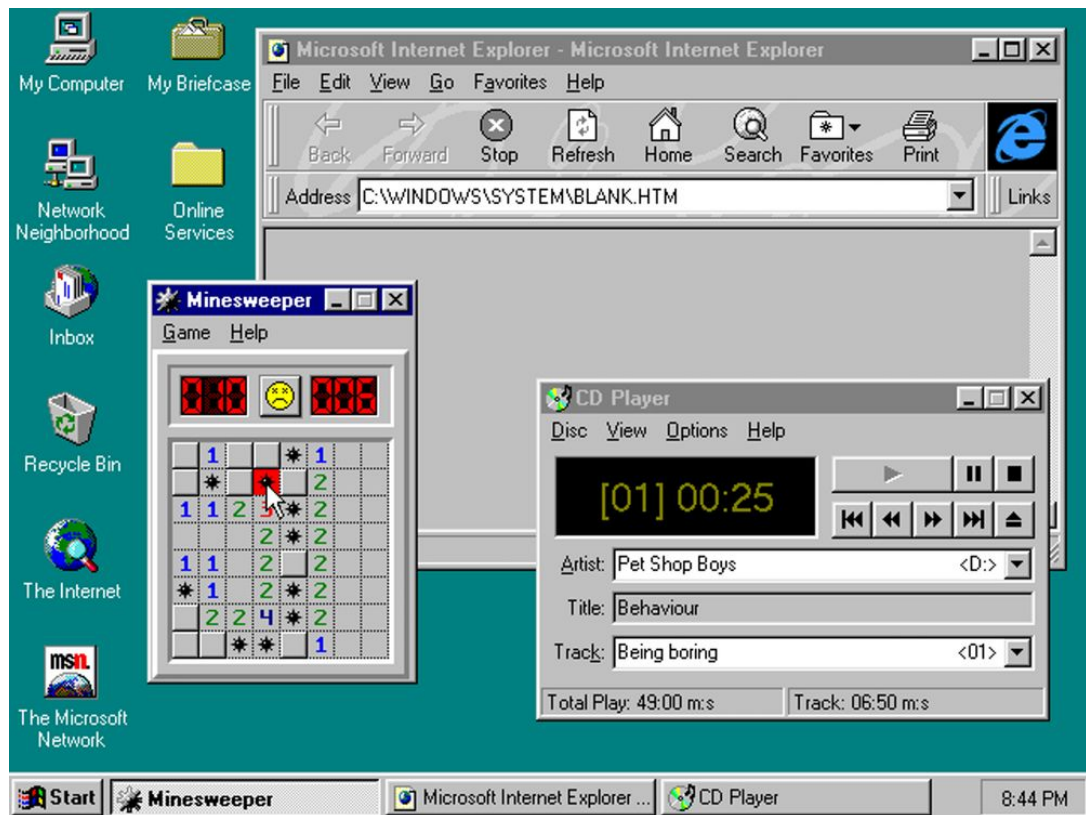
SimCity 2000



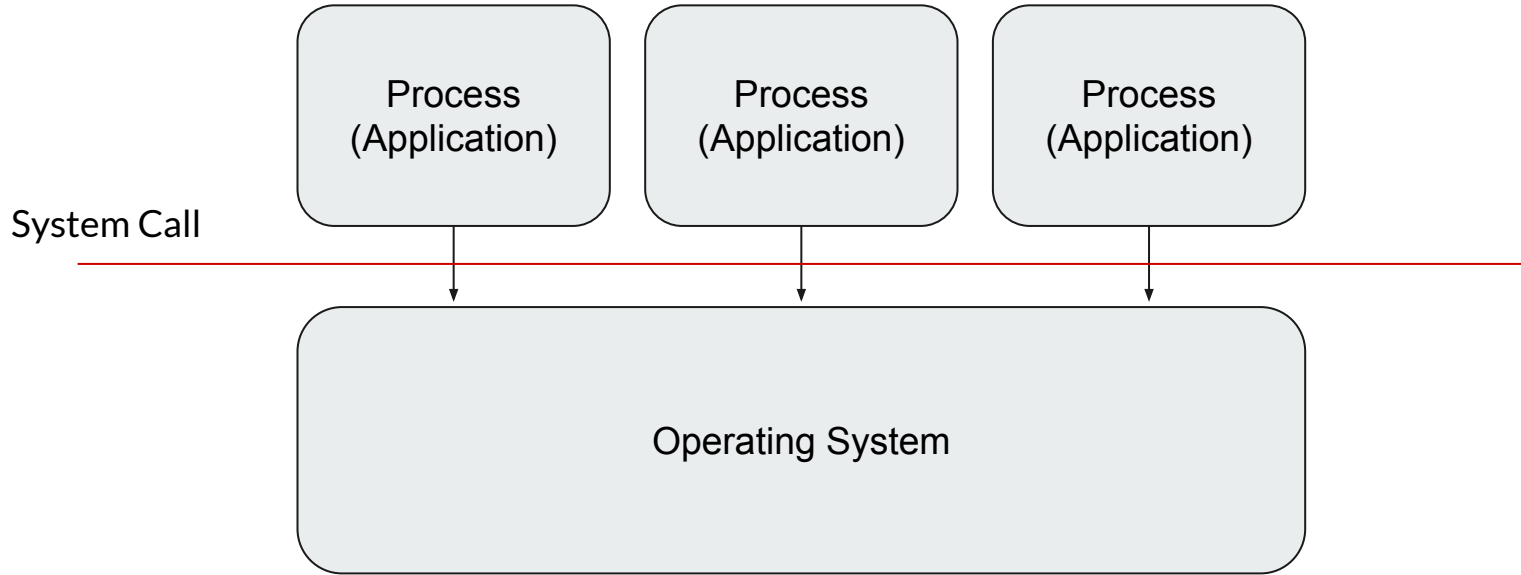
Single Process System

1995

—



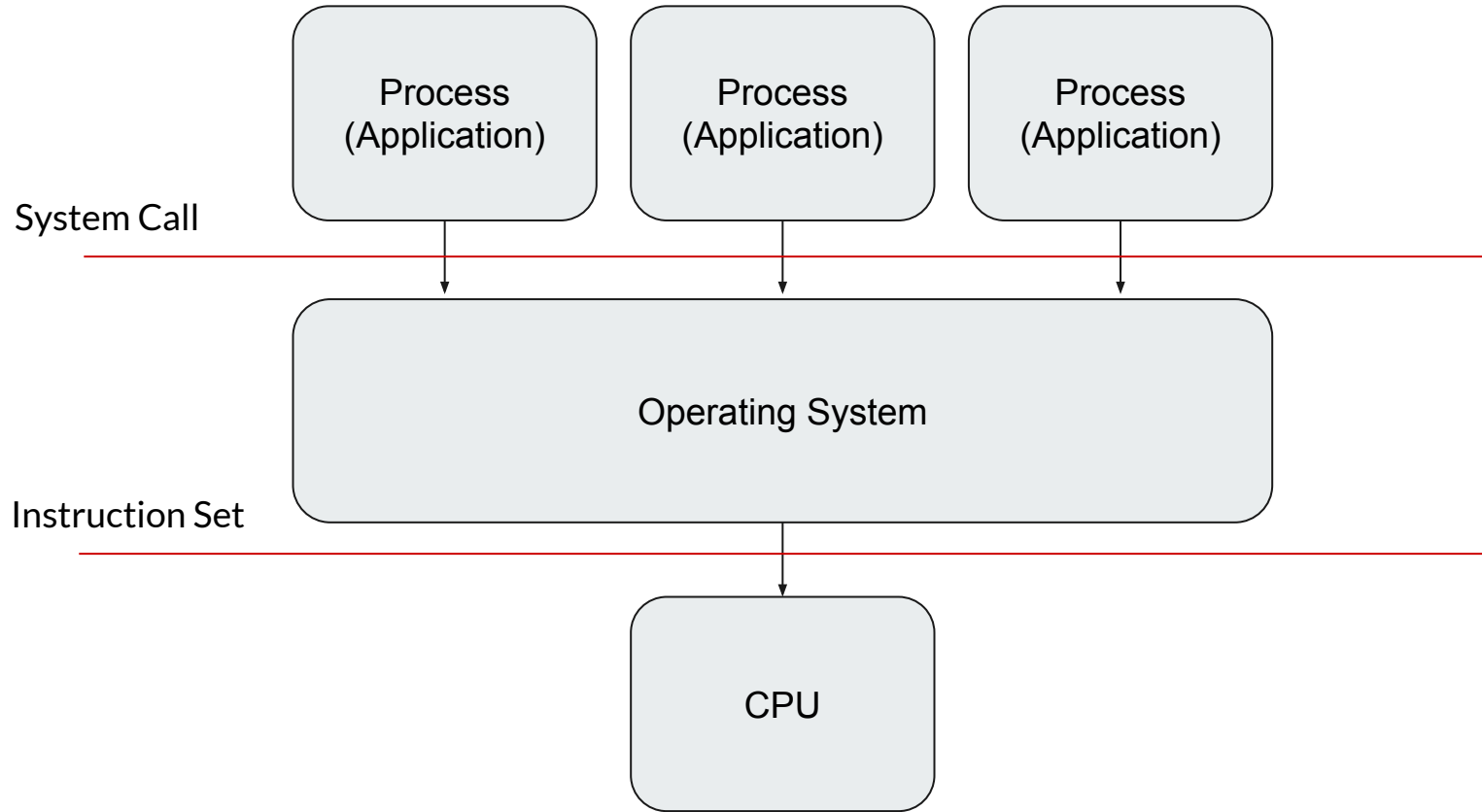
Microsoft Windows 95



Multi Processes System



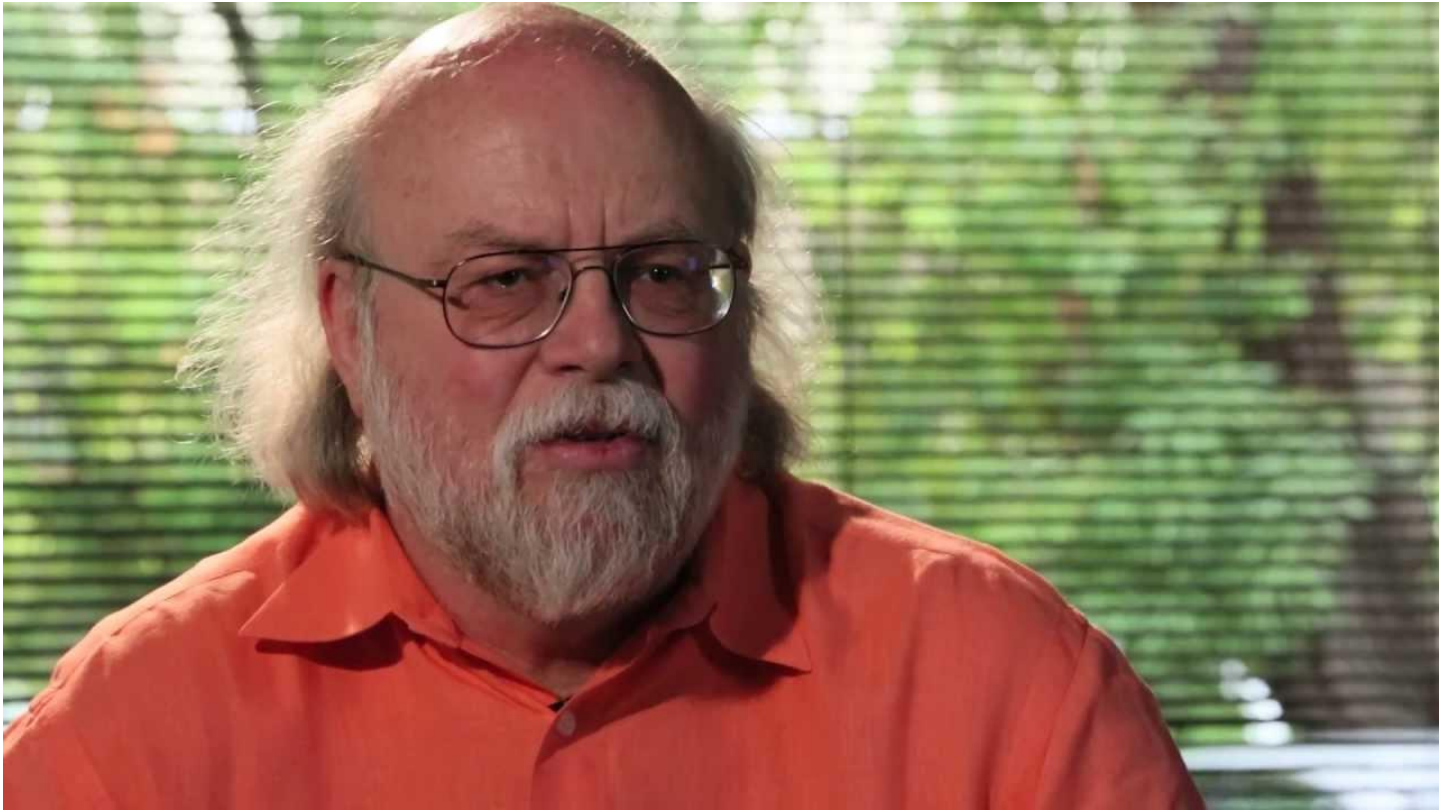
Intel Pentium II CPU



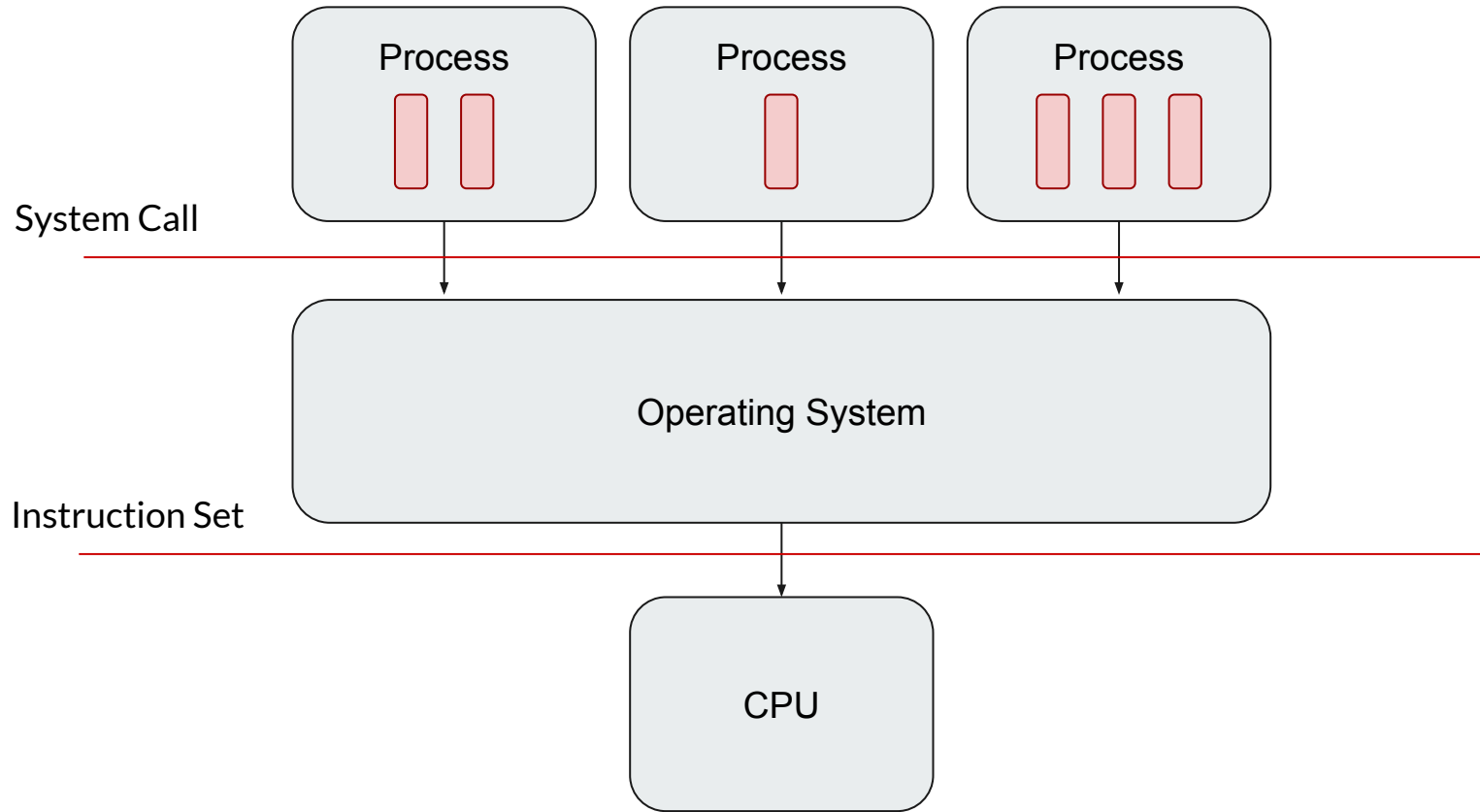
Multi Processes System with Single-Core CPU

2000

—



Write Once, Run Everywhere.



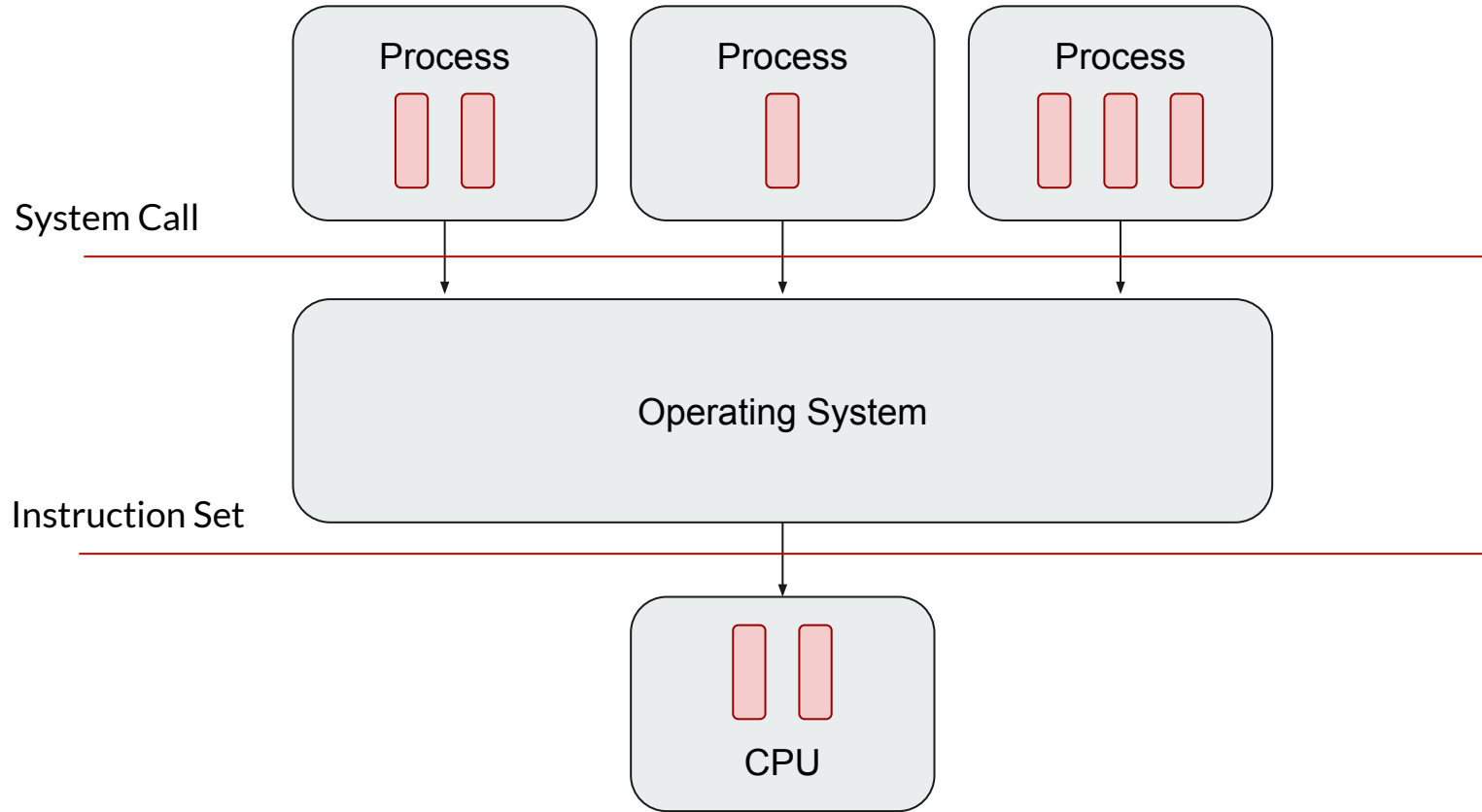
Multithreading System with Single-Core CPU

2005

—



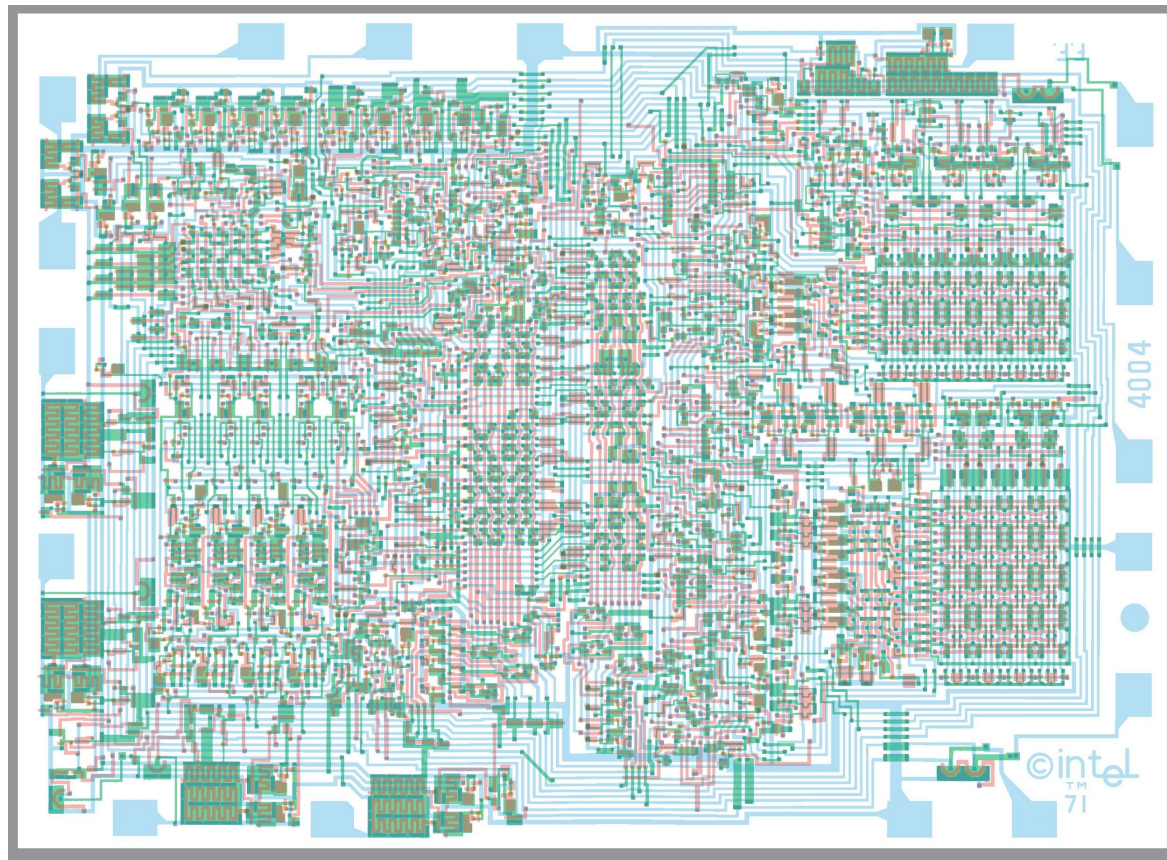
Intel Core 2 CPU



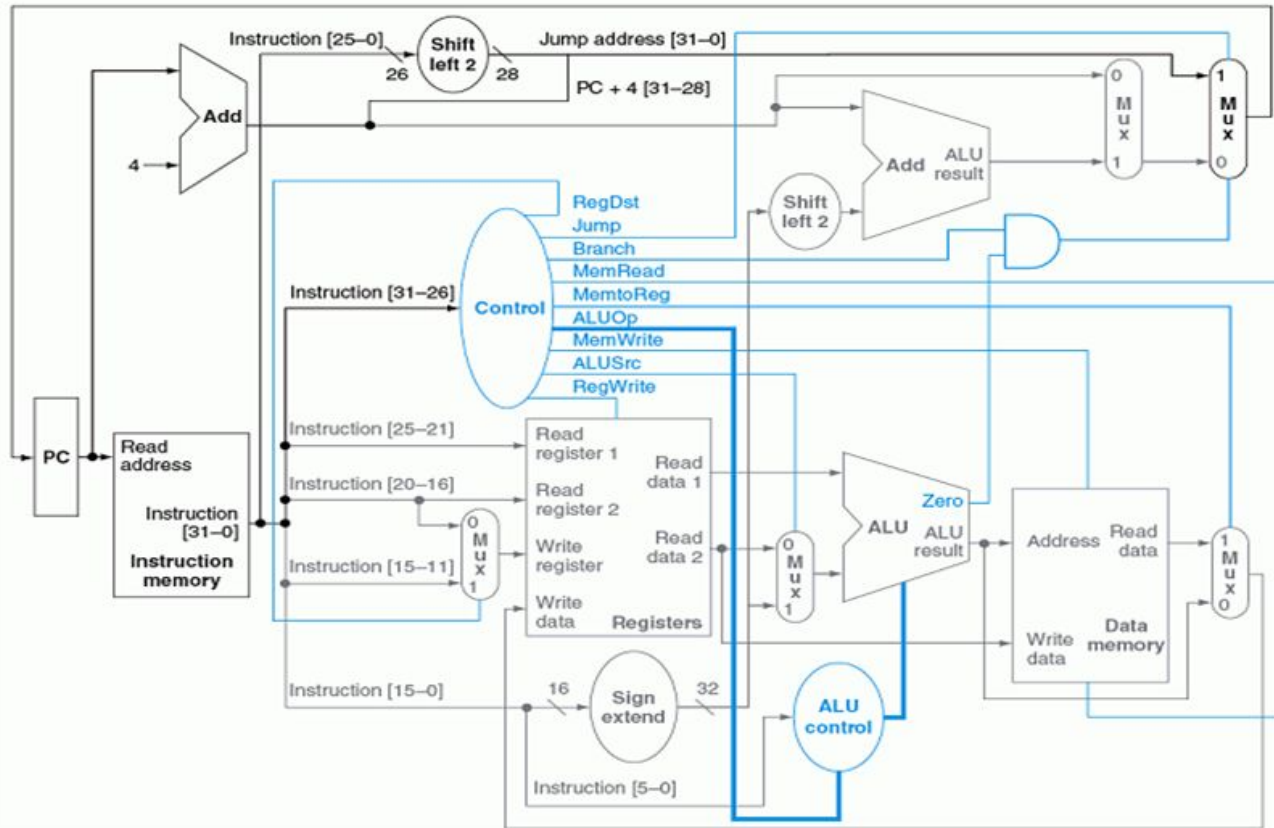
Multithreading System with Multi-Core CPU

2007 ~ 2015

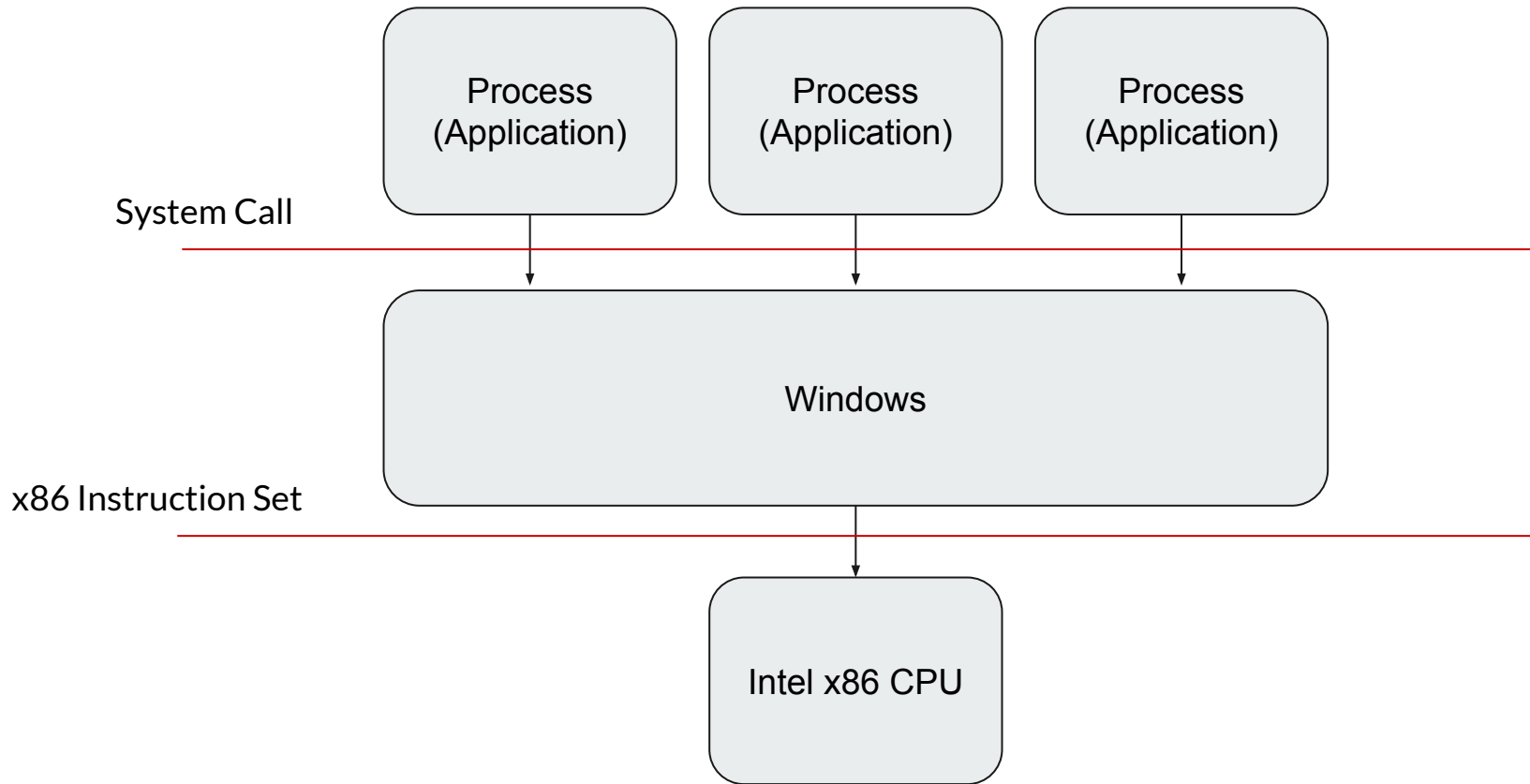
Industry Paradigm Shift



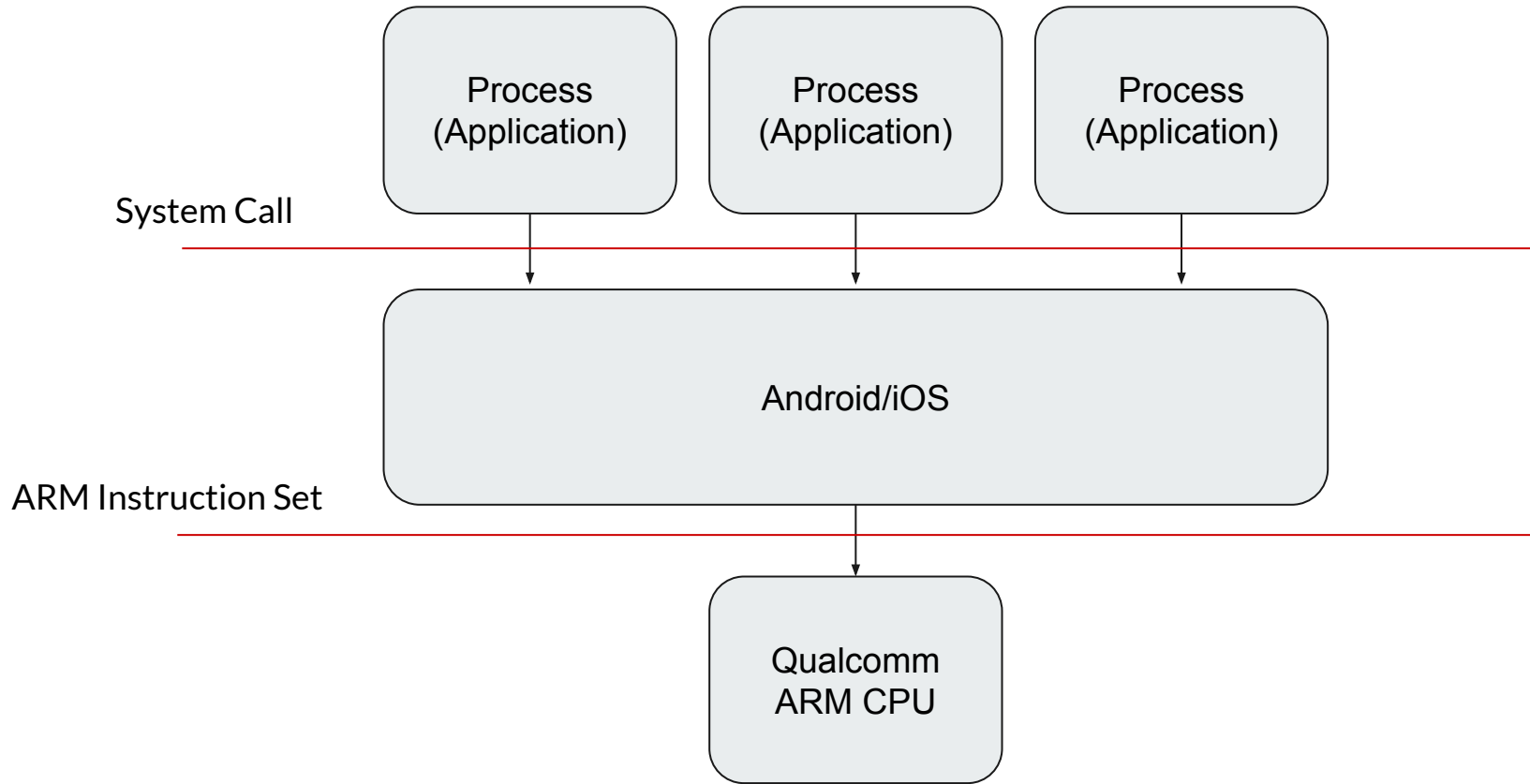
Intel CPU Design



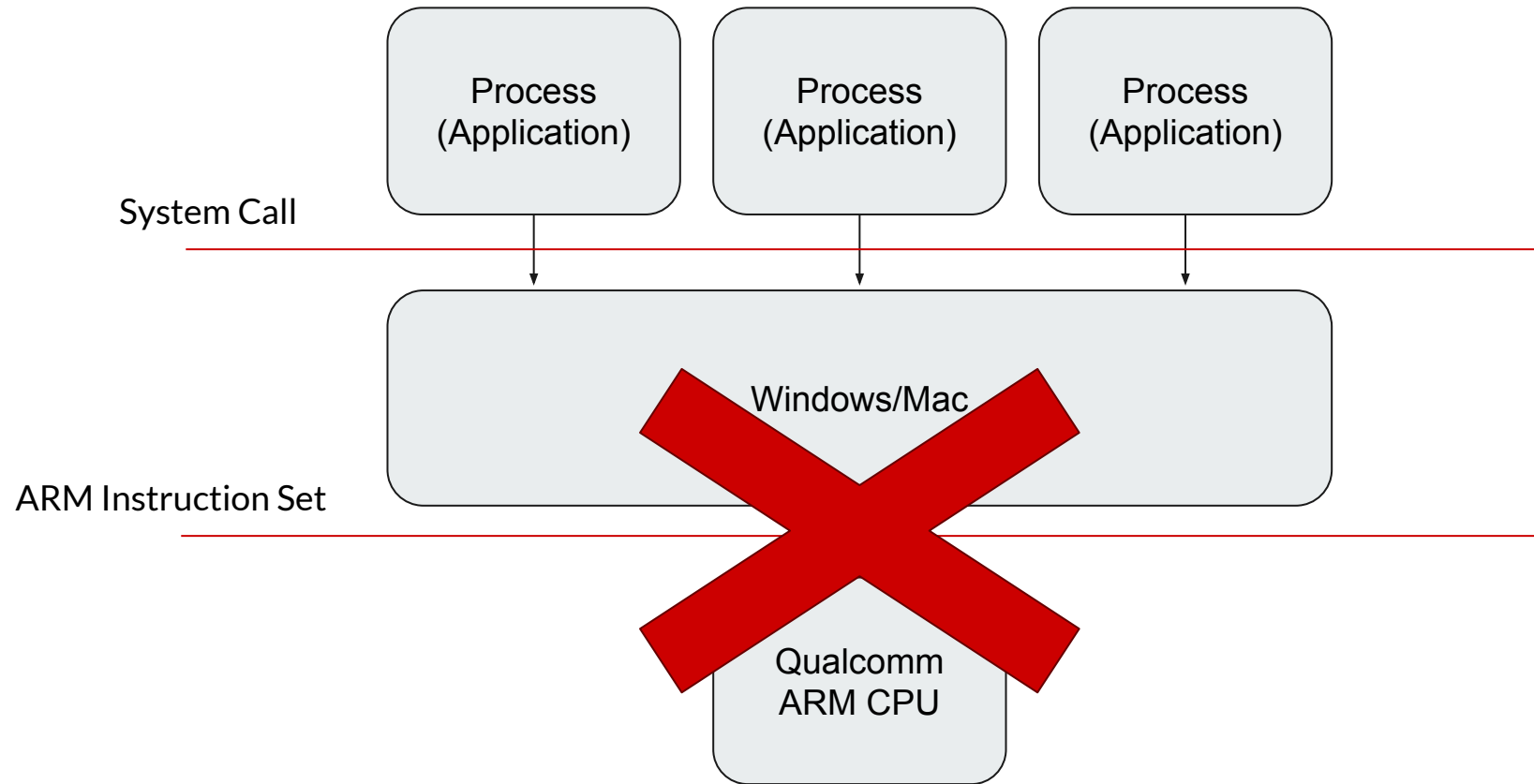
MIPS CPU Design



Wintel Era



Mobile Era



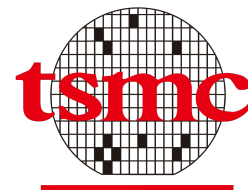
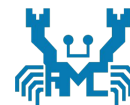
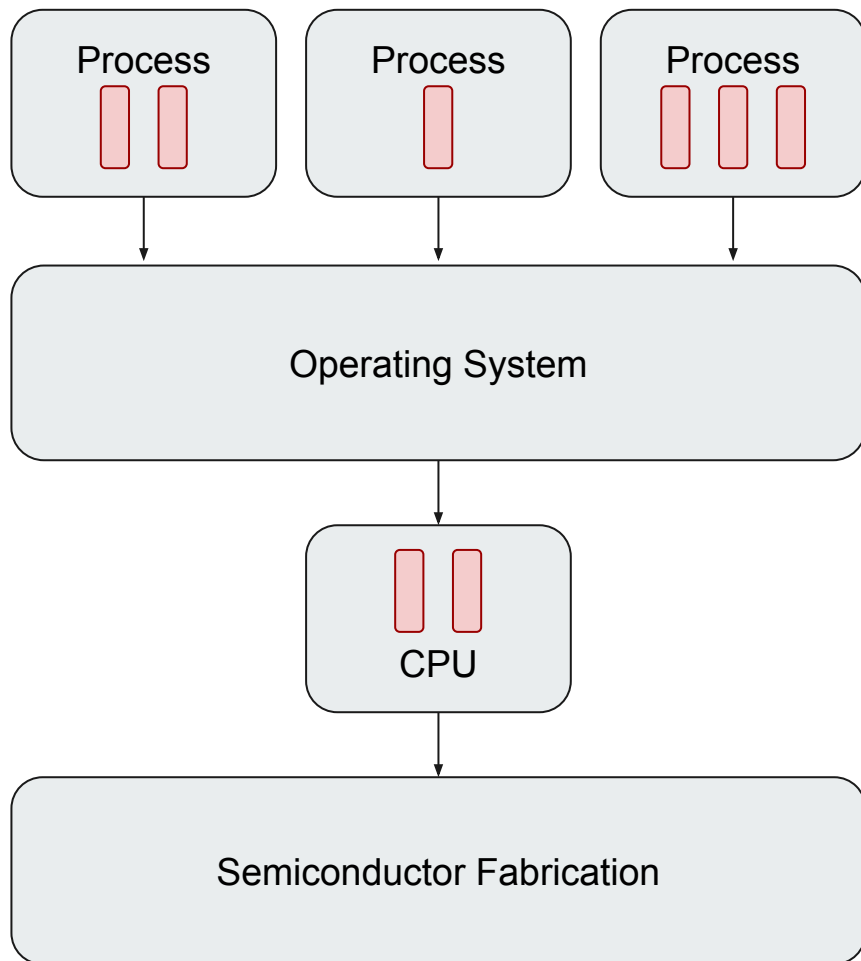
Bad Idea

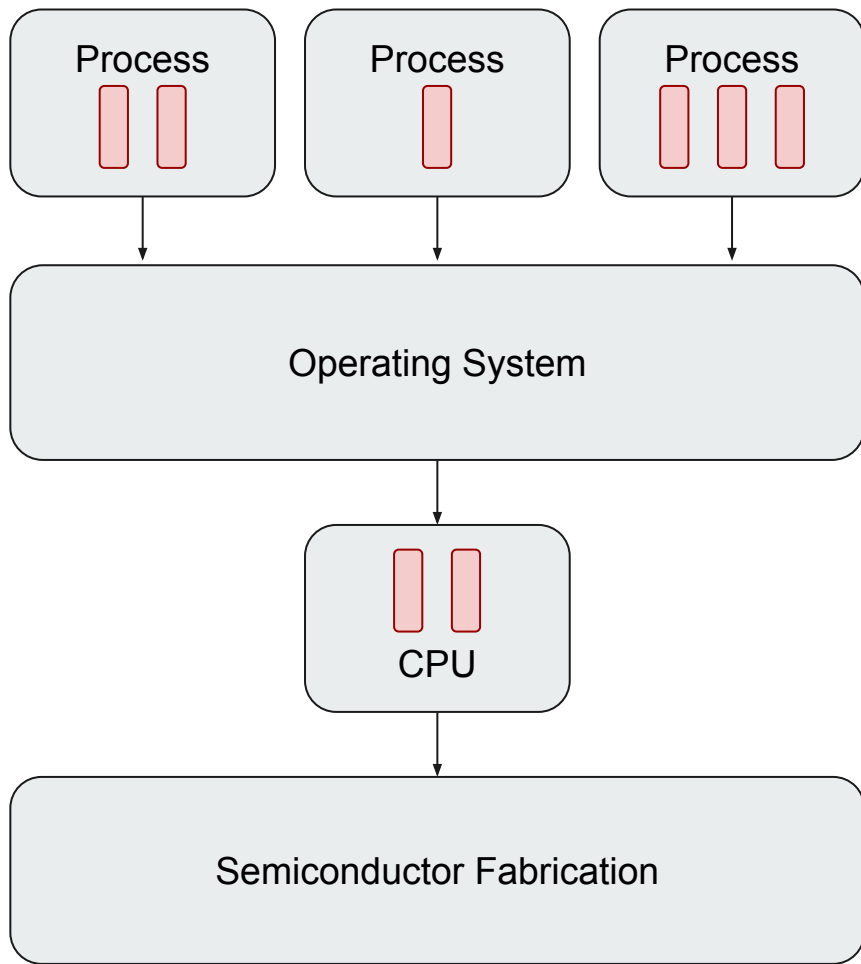


Windows 10 with Qualcomm ARM Instruction Set

2019

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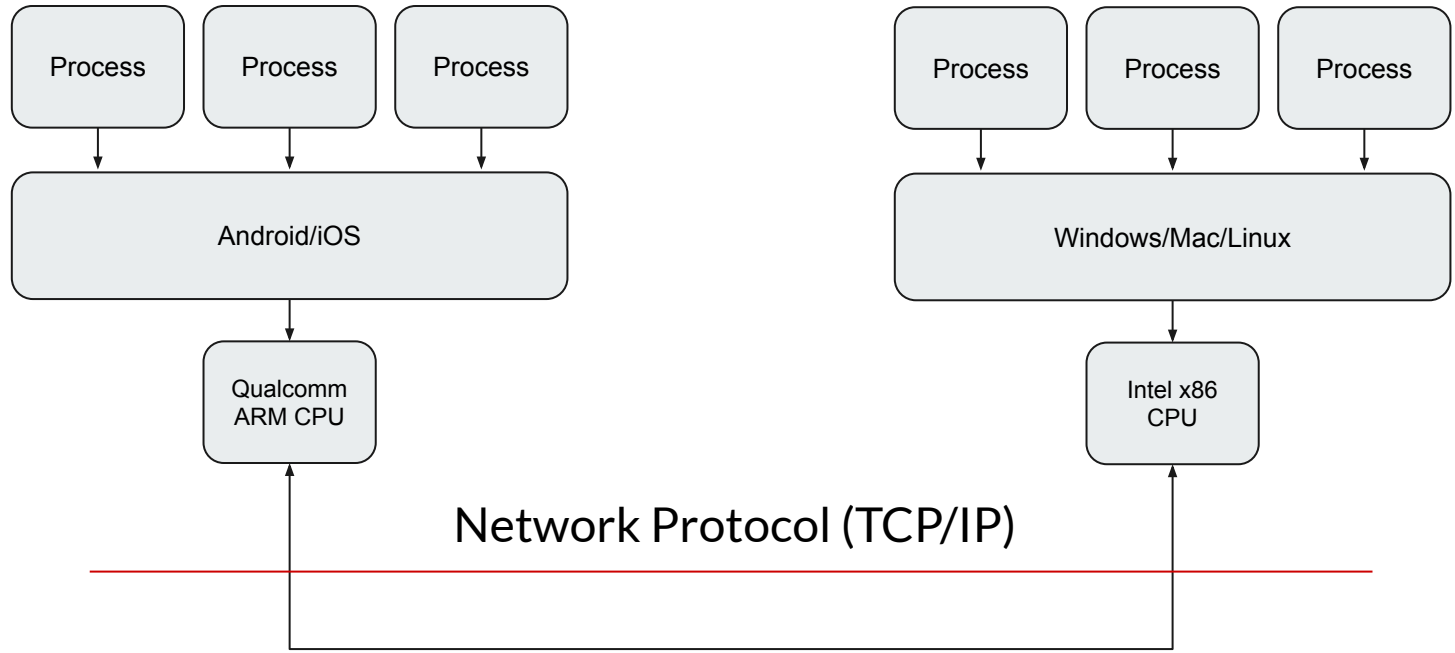
C++, Java, JavaScript, Kotlin, Swift

C

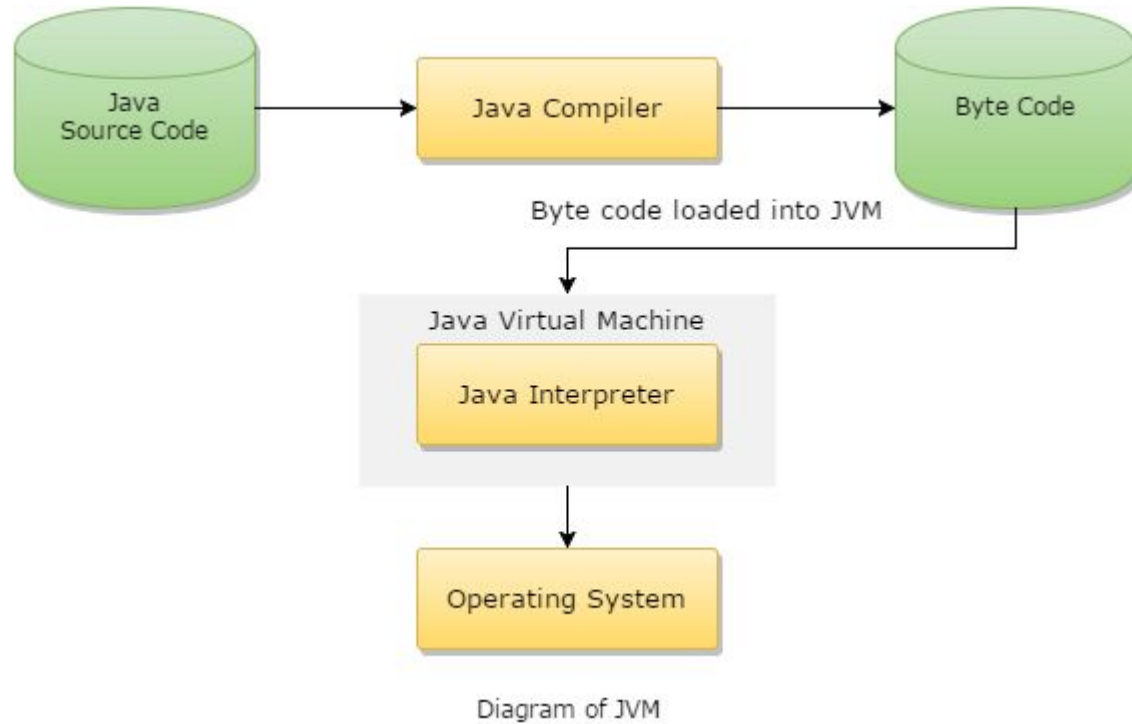
Machine Language
(0000 1100 1111 0111)



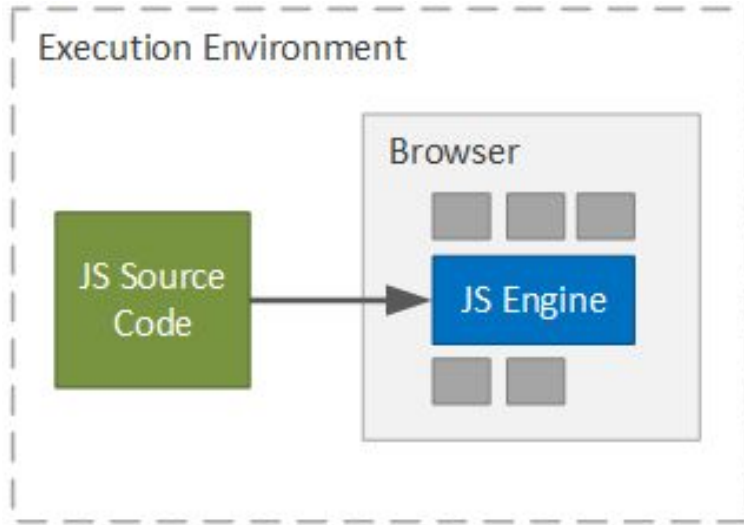
Examples



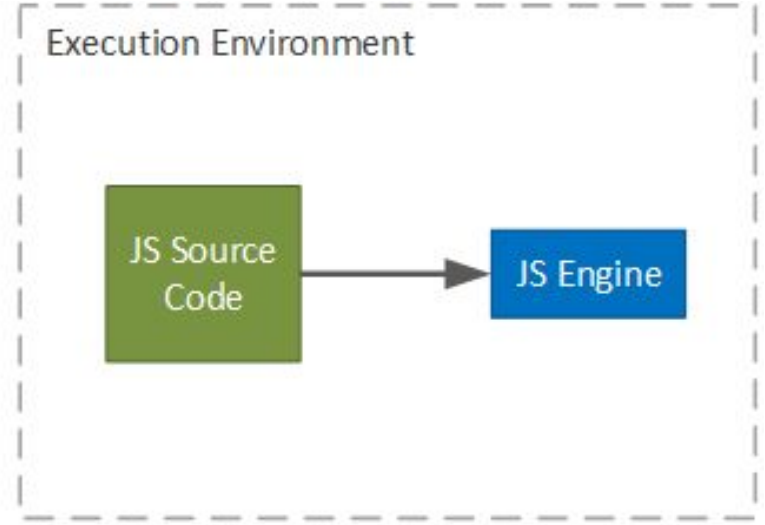
Network (Internet)



Java Virtual Machine



JAVASCRIPT IN A BROWSER



STANDALONE JAVASCRIPT

JavaScript Engine

一、 遊戲簡介

製作一個【活的】紙上遊戲是這個作品最大的動機，因此遊戲中回合輪流、行進、買地、蓋屋、收租金等基本規則與紙上遊戲差不多。與上一代遊戲比較起來，遊戲中增加許多豐富的變化，希望能使玩家有身歷其境的樂趣。

二、 系統需求

主 機：PC AT 286/386/486 及其他100%相容機型

記憶容量：640K記憶體(載入DOS後仍需剩下565K之記憶空間)

系統設定：請在CONFIG.SYS中設定FILES = 20, BUFFERS = 2

磁碟需求：一部硬碟或兩部1.2MB軟碟

操作系統：DOS 3.3或以上之版本

顯示模式：VGA卡及其顯示螢幕

DOS 系統下的遊戲說明書


```
C:\FALLOUT>dir
Directory of C:\FALLOUT\
.                <DIR>                09-07-2016  22:30
..               <DIR>                11-07-2016   9:01
DATA             <DIR>                09-07-2016  20:25
CRITTER  DAT      158,022,057 09-07-2016  20:26
DIGITEST RAW       37,448 09-07-2016  20:26
DOS4GW   EXE      265,396 09-07-2016  20:26
FALLOUT  CFG        1,037 09-07-2016  22:30
FALLOUT  EXE     1,498,058 09-07-2016  20:26
FALLOUT  TXT       11,318 09-07-2016  20:26
HMIDET   386       81,990 09-07-2016  20:26
HMIDRV   386      261,425 09-07-2016  20:26
MASTER  DAT     395,798,680 09-07-2016  20:28
README   TXT        7,115 09-07-2016  20:28
SOUND    EXE      115,350 09-07-2016  20:28
    11 File(s)      556,099,874 Bytes.
     3 Dir(s)       262,144,000 Bytes free.
```

```
C:\FALLOUT>fallout.exe
DOS/4GW Protected Mode Run-time  Version 1.97
Copyright (c) Rational Systems, Inc. 1990-1994
DOS/4GW fatal error (1307): not enough memory
```

```
C:\FALLOUT>_
```

記憶體不足



有些事，必須放下



Provide Acceptable Solution in Your Core Domain