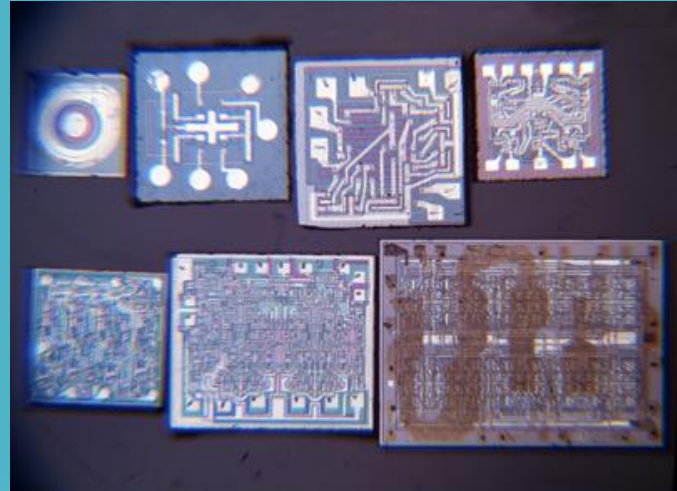
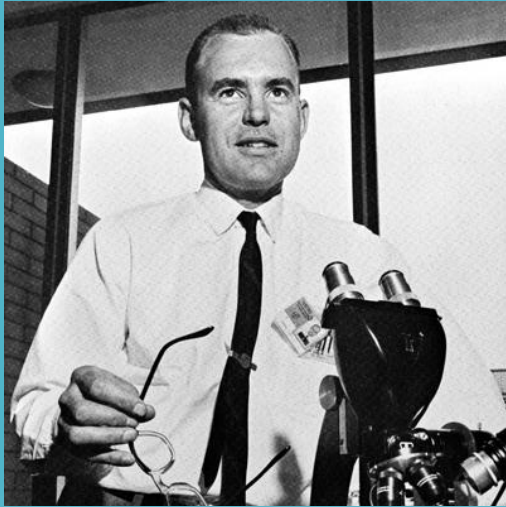


Moore 定律与 Intel®

曾祥东 14307110142

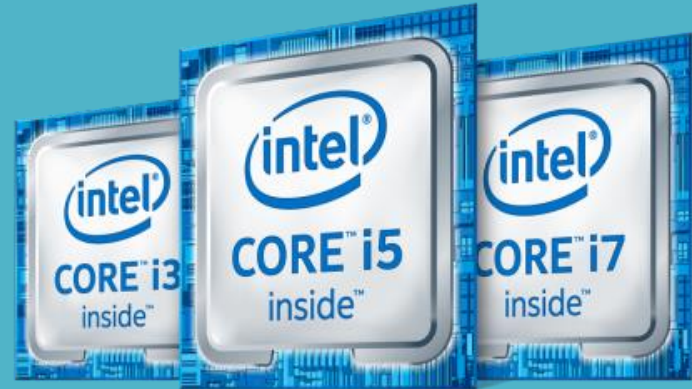
物理系

Gordon Moore & chips



1960s

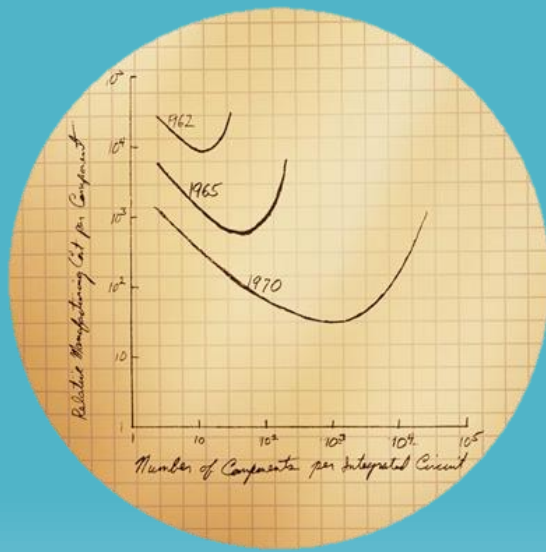
Gordon Moore & chips



2010s

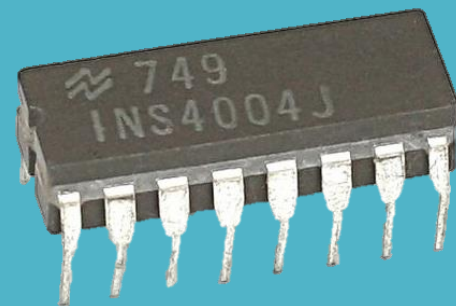
Moore's Law

- 1. 集成电路芯片上所集成的电路的数目，每隔18个月就翻一倍。
- 2. 微处理器的性能每隔18个月提高一倍，或价格下降一半。
- 3. 用一个美元所能买到的电脑性能，每隔18个月翻两倍。



Development of Intel® CPU

	CPU	制程	主频
1970s	“4004”	10 μm	740 kHz
1980s	“386”	1 μm	12-40 MHz
1990s	Pentium®	0.18 μm	1.3-3.8 GHz
21世纪	多种	65 nm - ?	



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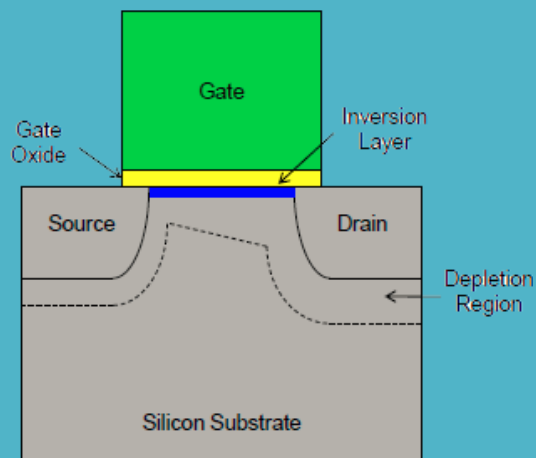


Intel® in 21 century

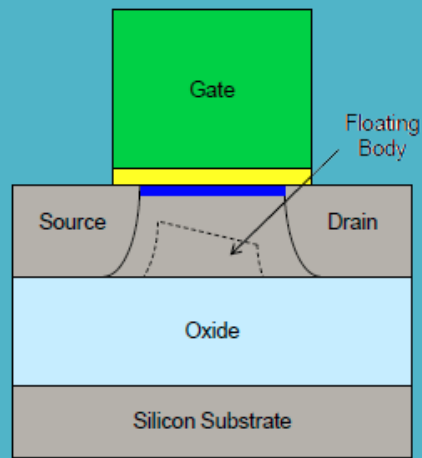
Moore 定律!



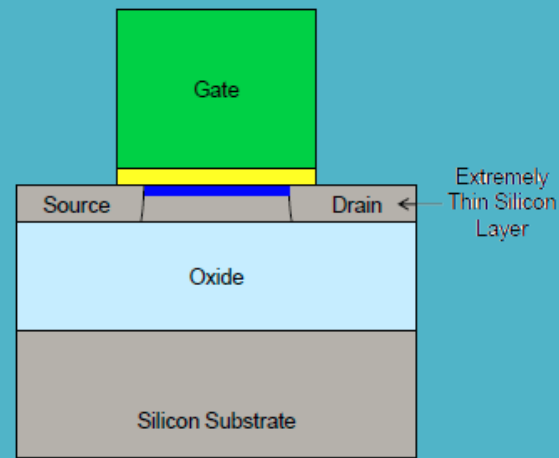
Tri-Gate (I)



Bulk Transistor
普通晶体管

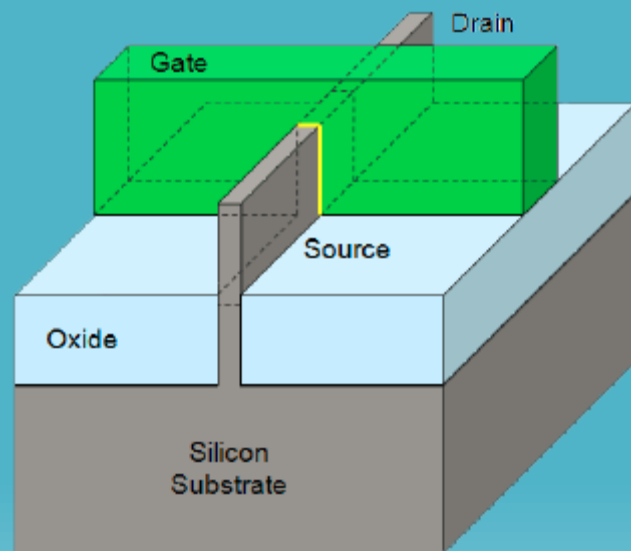
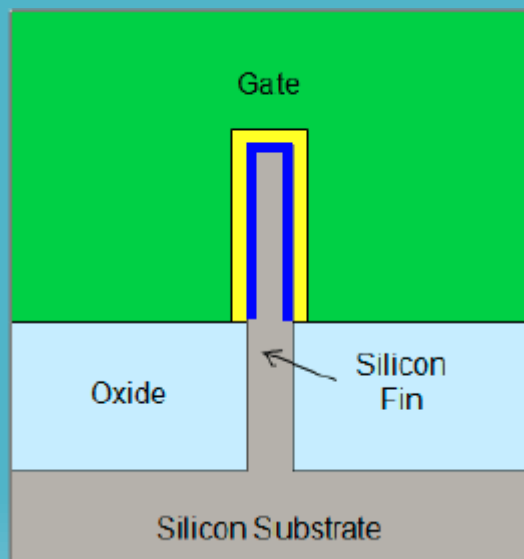


PDSOI
部分耗尽SOI



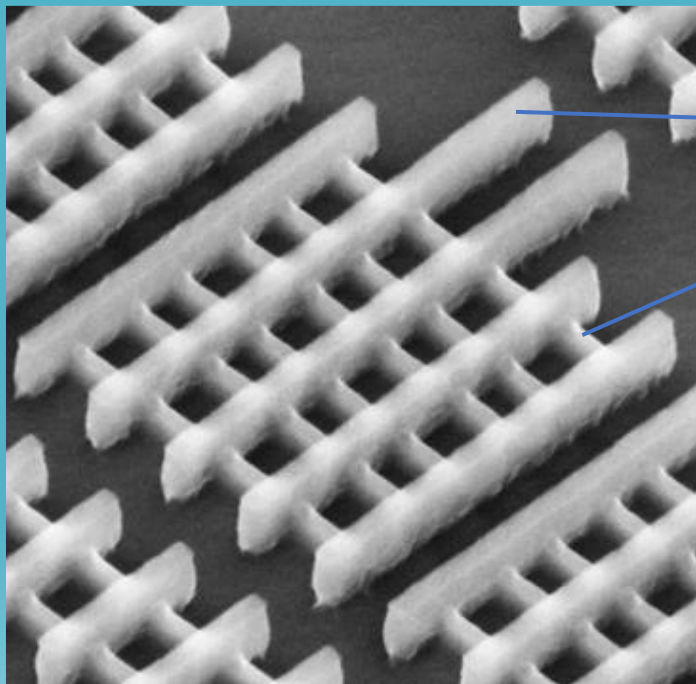
FDSOI
完全耗尽SOI

Tri-Gate (II)



Tri-gate Transistor
三栅极晶体管

Tri-Gate (II)

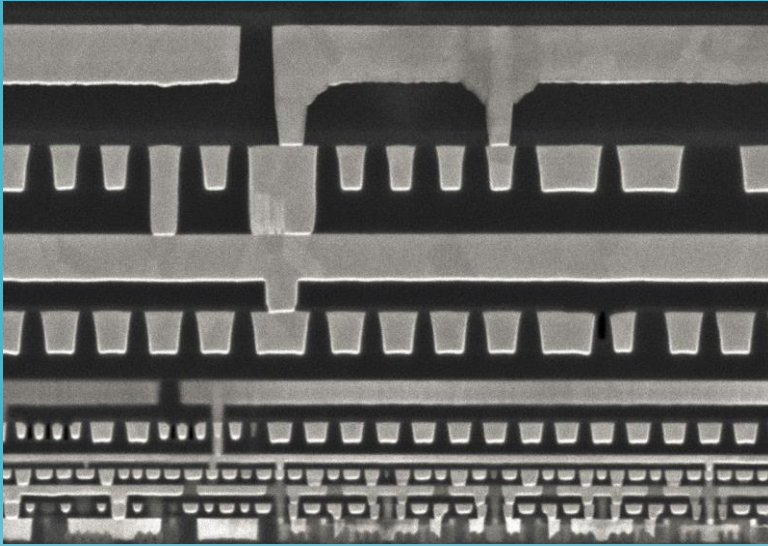


栅极

“鳍”

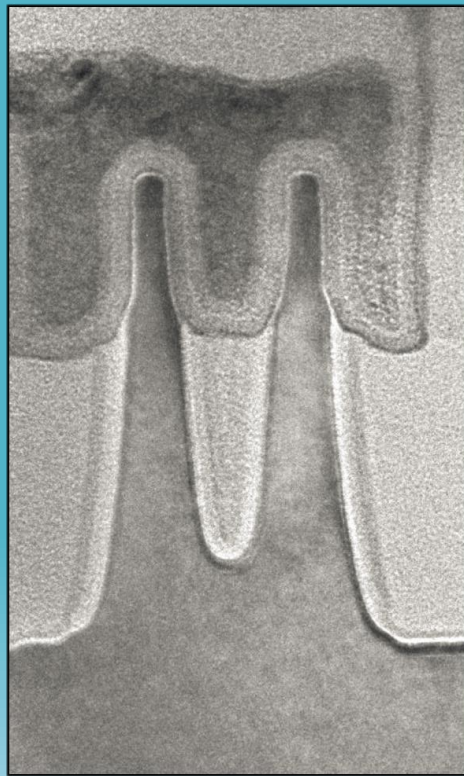
22 nm 3-D
Tri-gate Transistor

Year 2015: into 14 nm (I)



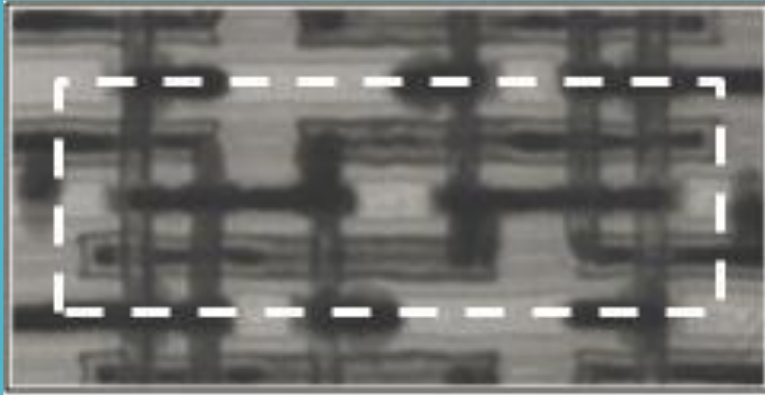
Interconnects
金属互联

Year 2015: into 14 nm (I)




Transistor Fin
晶体管“鳍”

Year 2015: into 14 nm (I)



SRAM Memory Cells
静态RAM存储单元

Year 2015: into 14 nm (II)



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只不过总有些敢于逆势上扬的，Intel的Core i7-6700K处理器这几天不仅持续缺货，竟然还涨价了，之前定价2799元还偶有打折，这几天盒装版 Core ...

news.mydrivers.com/1/456/456523.htm ▼ 2 天前

[【Intel 酷睿i7 6700K】报价_参数_图片_论坛 Intel 酷睿i7 ...](#)

中关村在线(ZOL.COM.CN)提供Intel 酷睿i7 6700K CPU最新报价，同时包括Intel 酷睿i7 6700K图片、Intel 酷睿i7 6700K参数、Intel 酷睿i7 6700K评测行情、Intel 酷睿i7 6700K ...

detail.zol.com.cn/cpu/index1098616.shtml ▼ 2015-9-18

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(中关村在线天津市行情) 英特尔正式发布了代号为Skylake的第六代酷睿CPU，首发两款四核型号：i7-6700K和i5-6600K，其中i7-6700K是四核心八线程设计 ...

cpu.zol.com.cn/551/5512975.html ▼ 2015-11-11

After 2015?

- 目标

- 2017: 7 nm
- 2019: 5 nm

- 材料

- si 几十年内不会被替代

After 2015?

Intel[®]: Moore 定律10年内不会失效!

——挺进 5 nm!

