

## Integración de circuitos

### Referencias interesantes

[http://www.semiconductors.org/news/2016/07/08/press\\_releases\\_2015/international\\_technology\\_roadmap\\_for\\_semiconductors\\_examines\\_next\\_15\\_years\\_of\\_chip\\_innovation/](http://www.semiconductors.org/news/2016/07/08/press_releases_2015/international_technology_roadmap_for_semiconductors_examines_next_15_years_of_chip_innovation/)

[https://irds.ieee.org/images/files/pdf/2017/2017IRDS\\_MM.pdf](https://irds.ieee.org/images/files/pdf/2017/2017IRDS_MM.pdf)

<https://www.xataka.com/componentes/de-nanometros-miniaturizacion-y-ley-de-moore-el-futuro-de-los-transistores>

<https://www.xataka.com/componentes/la-importancia-de-los-nanometros-en-los-procesadores>

<https://www.xataka.com/componentes/intel-prepara-su-nueva-generacion-de-procesadores-en-2017-llegaran-los-10-nanometros>

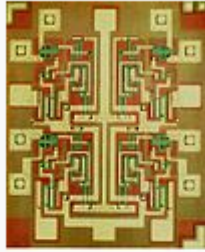
<http://www.itrs2.net/>

[https://en.wikipedia.org/wiki/14\\_nanometer](https://en.wikipedia.org/wiki/14_nanometer)

<https://www.technologyreview.com/s/601441/moores-law-is-dead-now-what/>

<https://www.technologyreview.com/s/601102/intel-puts-the-brakes-on-moores-law/>

## Semiconductor manufacturing processes



10  $\mu\text{m}$  – 1971  
6  $\mu\text{m}$  – 1974  
3  $\mu\text{m}$  – 1977  
1.5  $\mu\text{m}$  – 1982  
1  $\mu\text{m}$  – 1985  
800 nm – 1989  
600 nm – 1994  
350 nm – 1995  
250 nm – 1997  
180 nm – 1999  
130 nm – 2001  
90 nm – 2004  
65 nm – 2006  
45 nm – 2008  
32 nm – 2010  
22 nm – 2012  
**14 nm** – 2014  
10 nm – 2017  
7 nm – ~2018  
5 nm – ~2020

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Half-nodes

V · T · E