Chapter-1
Silicon Photonics: Disruptive and Ready for Prime Time

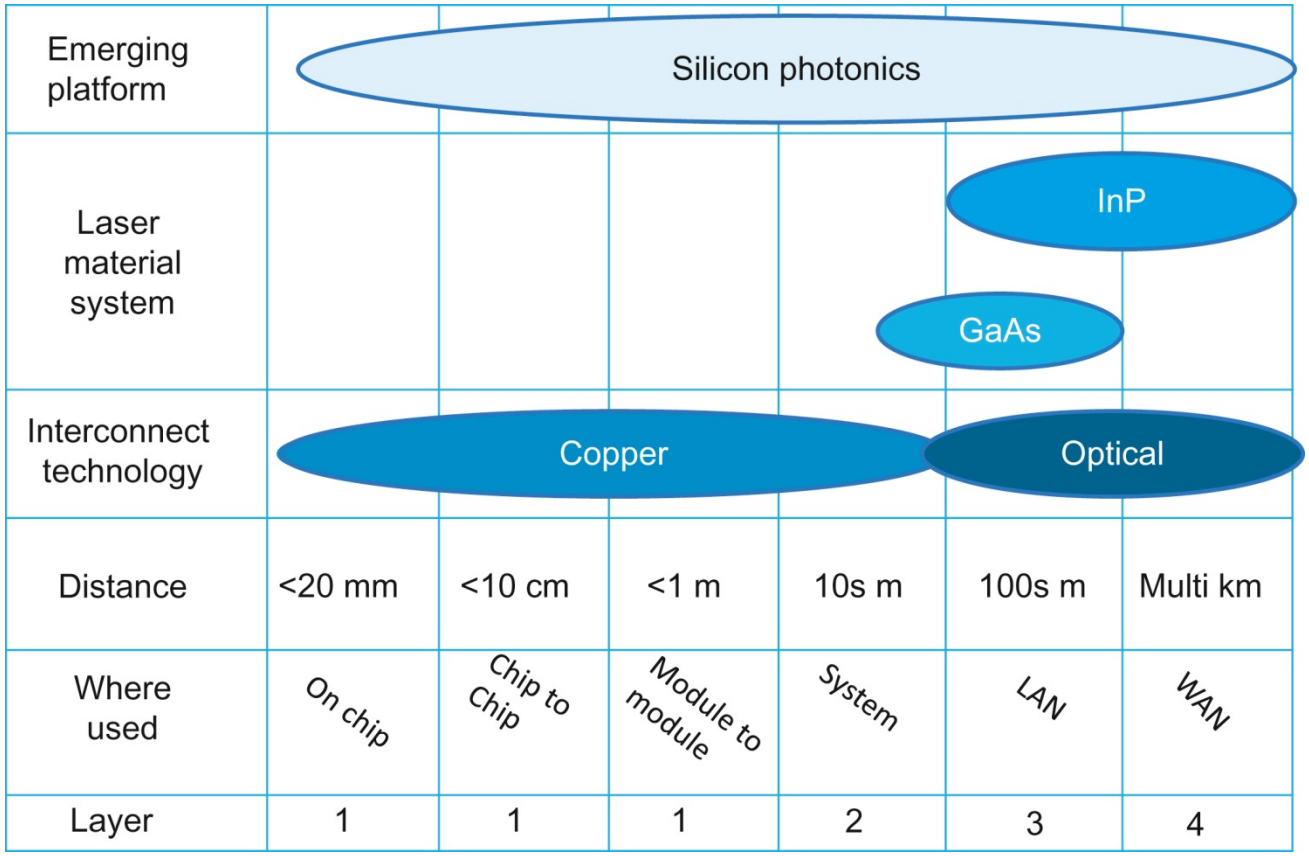

Figure 1.1: The reach of silicon photonics and other interconnect technologies. Based on "On-board Optical Interconnect," CTR III TWG Report #3, MIT Microphotonics Center, April 2013, figure 2.

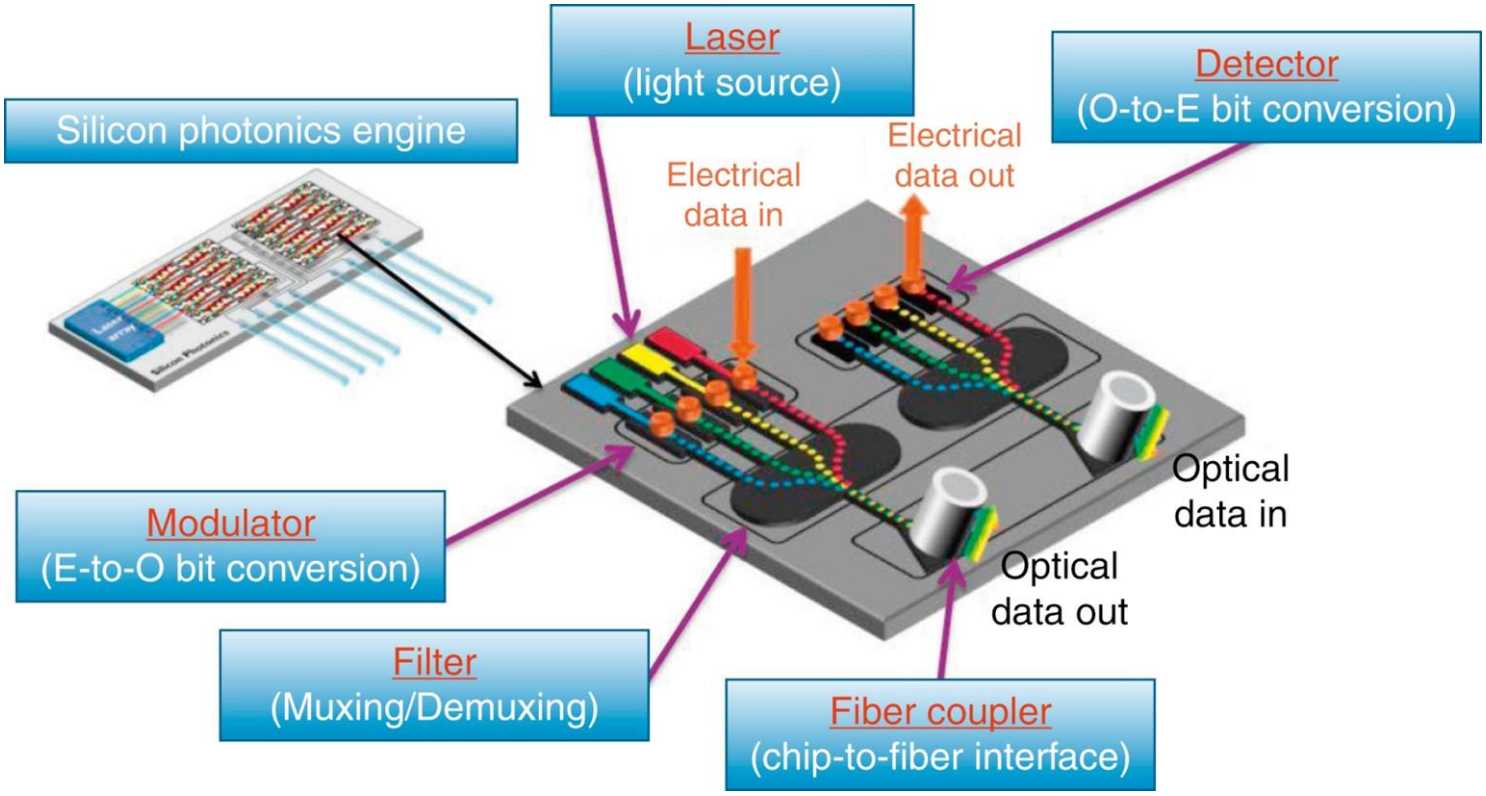

Figure 1.2: Silicon as an optical integration platform. Julien Happich, "CMOS-compatible intra-chip photonics brings new class of sensors", ,http://www.analog-eetimes.com/news/cmos-compatible-intra-chip-photonicsbrings-new-class-sensors., Courtesy of EETimes, October 15, 2013.

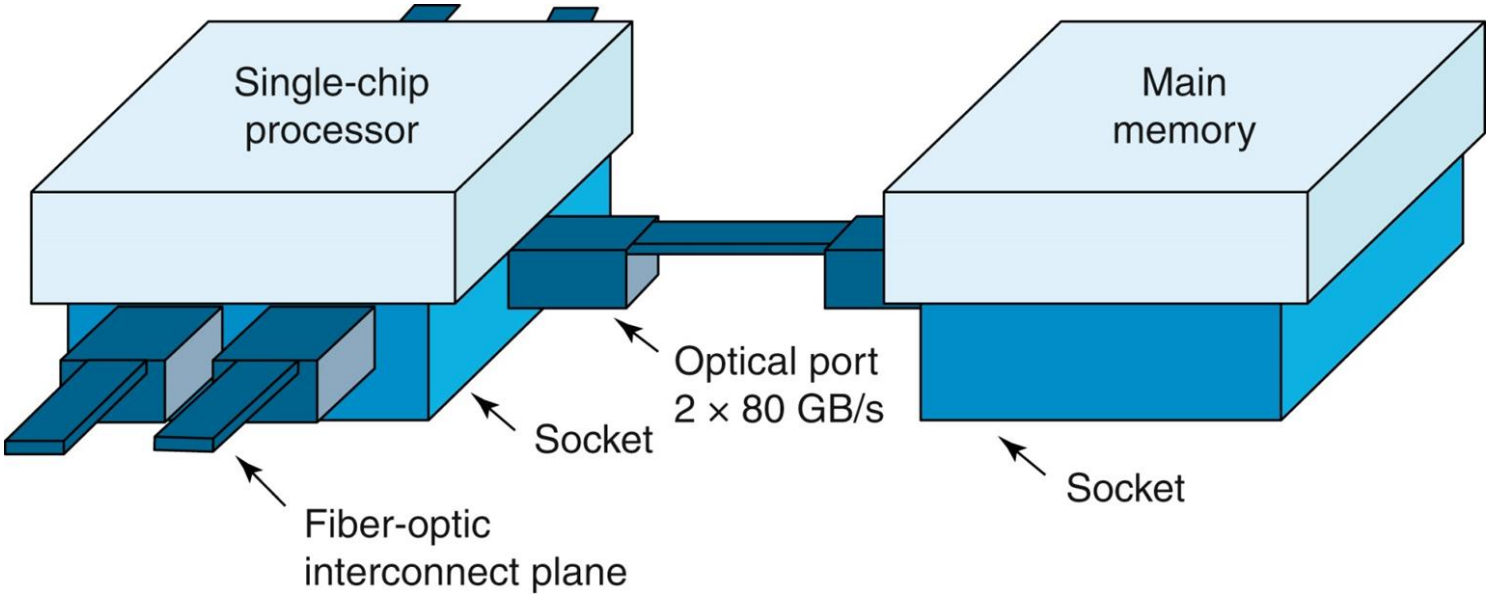

Figure 1.3: Optics to interconnect chips. r 2016 IEEE. Reprinted, with permission, from Levi AFJ. Challenges for photonics in future systems. In: Biophotonics/optical interconnects and VLSI photonics/WBM microcavities, 2004 Digest of the LEOS summer topical meetings; 2004. p. 12. ttp://dx.doi.org/10.1109/LEOSST.2004.1338675

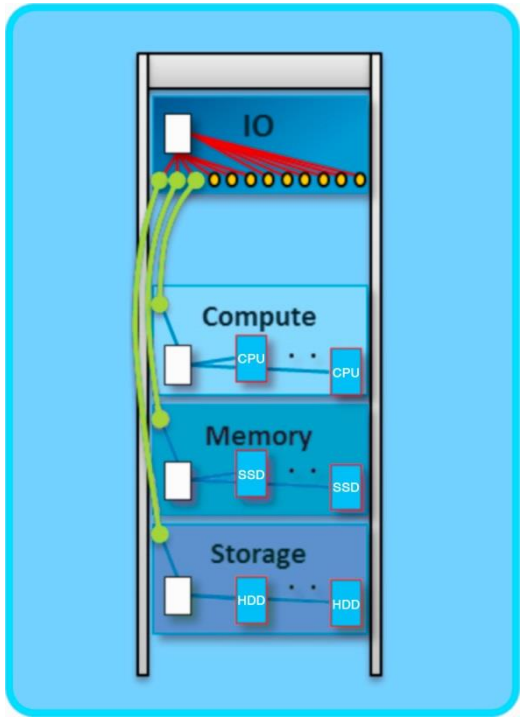

Figure 1.4: Disaggregated server where compute, storage, and memory are each pooled and they share networking. Max Smolaks, “Ericsson to sell Intel’s hyperscale kit to network operators”, ,http://www.datacenterdynamics.com/content-tracks/servers-storage/ericsson-to-sell-intels-hyperscale-kit-to-network-operators/93484.fullarticle., March 3, 2015.

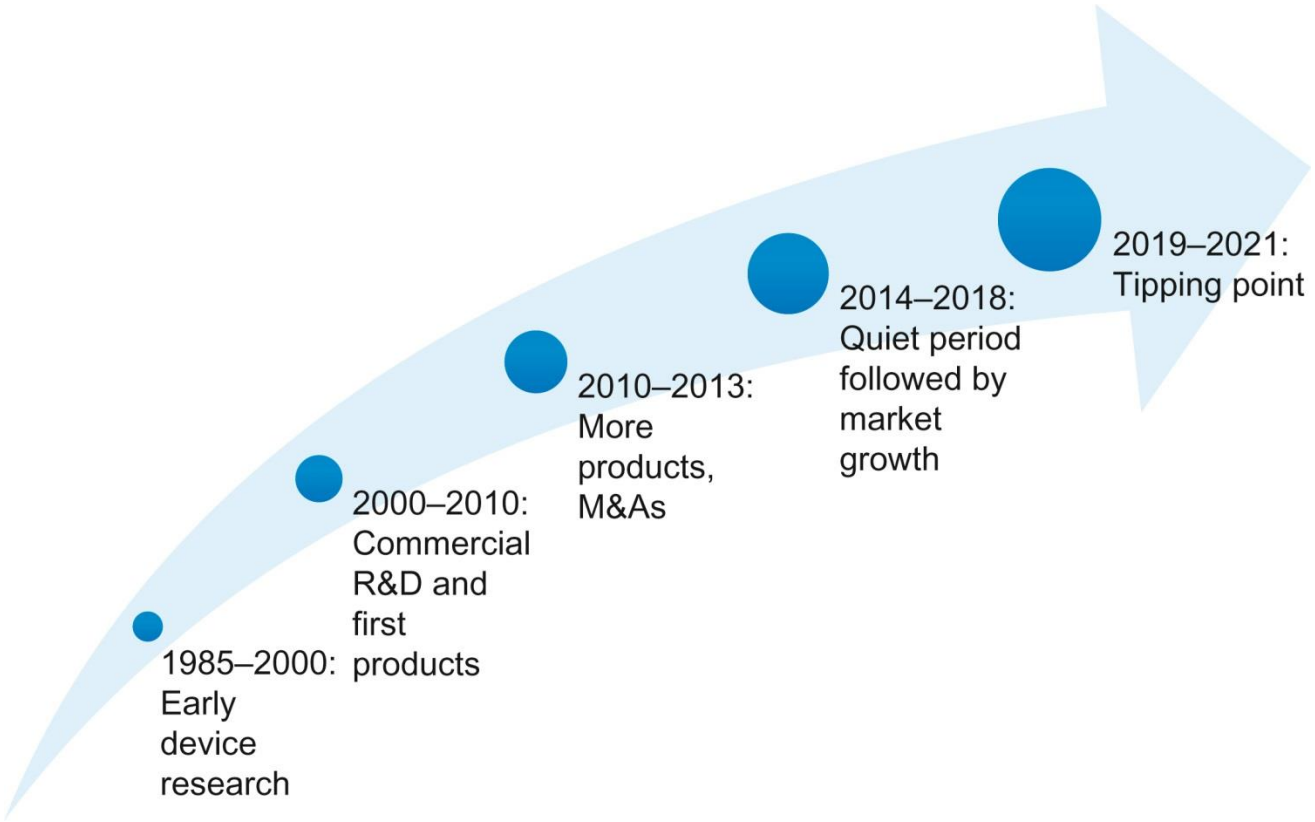

Figure 1.5: Silicon photonics' evolution from a core idea in 1985 to approaching its tipping point.

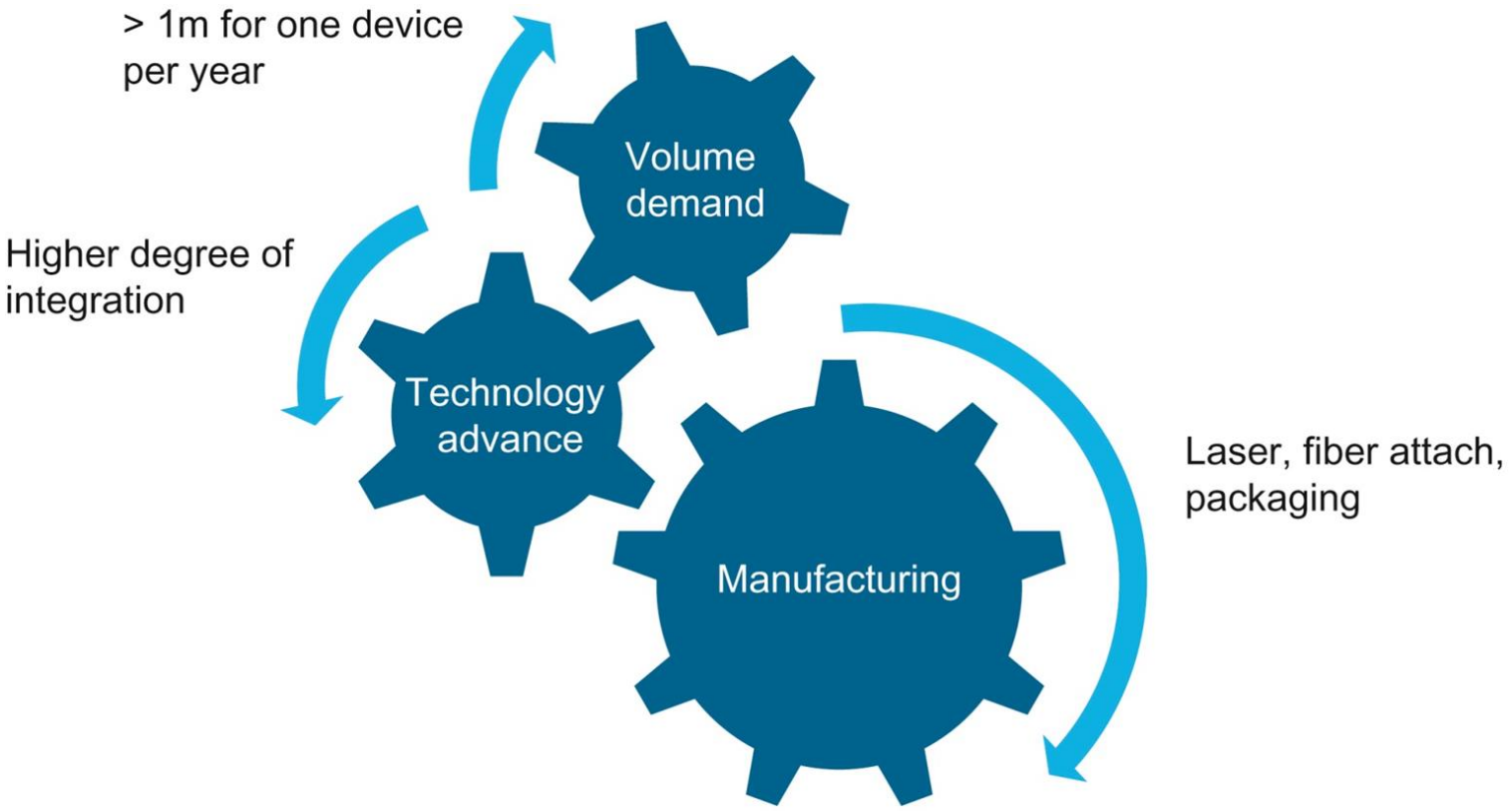

Figure 1.6: The remaining stages before silicon photonics reaches its tipping point.