	Memristor	PCM	STTRAM	SRAM	DRAM	Flash (NAND)	HDD
		Prototypes		Commercialized technologies			
Reciprocal density (F^2)	<4	4–16	20–60	140	6–12	1–4†	2/3
Energy per bit (pJ)	0.1–3	2–25	0.1–2.5	0.0005	0.005	0.00002	$1–10 \times 10^9$
Read time (ns)	<10	10–50	10–35	0.1–0.3	10	100,000	$5–8 \times 10^6$
Write time (ns)	~10	50–500	10–90	0.1–0.3	10	100,000	$5–8 \times 10^6$
Retention	years	years	years	As long as voltage applied	<<second	years	years
Endurance (cycles)	10^{12}	10^9	10^{15}	$>10^{16}$	$>10^{16}$	10^4	10^4

*The energy to operate NAND Flash is typically hundreds of picojoules per bit primarily because accessing the memory cells requires charging word and bit lines to high voltages. †Smaller number represents an effective area for multi-level cells. PCM, phase-change memory; STTRAM, spin torque transfer random access memory; SRAM, static RAM; DRAM, dynamic RAM; HDD, hard disk drive.