

HDD Characteristics and Metrics*



Dell puts its enterprise hard drive (HDD) and solid state drive (SSD) offerings through a rigorous validation process before they are ever considered as additions to PowerEdge server portfolio. Only the very best drives that can meet exact specifications for performance, duty cycles, Mean Time Between Failure (MTBF) and HDD rotational vibration necessary for an enterprise-level environment are accepted for customer usage. Choosing the right drives for your workloads is crucial to obtain a balance of performance, capacity and cost in your data center. This comparison chart can help you choose the best fit for your environment.

Form Factor	Interface	Category	RPM (K RPM)	Format	December 2017	Enclosure "U"	Drives per enclosure	Interface Speed	Max Power Consumption (Watts)**	Random IOPS * 70% Read/ 30% Write (8k transfer per command) Q = 4 Volatile WC = off	Random IOPS * 100% Read (8k transfer per command) Q = 4	MB/s * Sequential 100% Read (64k transfer per command) Q = 4	MB/s * Sequential 100% Write (64k transfer per command) Q = 4 Volatile WC = off	GB per Watt * (@ Max cap)	Sequential Streaming MB/s * per Watt (@ Max cap)	Random IOPS per Watt * (@ Max cap)	GB per Random IOPS * (@ Max cap)	TB per U * (@ Max cap)	IOP per U * (@ Max cap)	
2.5"	SAS	Mission Critical	15	4Kn	600/900GB	2	24	12Gbps	12	300	260	290	290	75.00	24	25	3.0000	10.80	3600	
				512e	900GB	2	24	12Gbps	12	300	259	283	283	75.00	24	25	3.0000	10.80	3600	
				512n	300/600/900GB	2	24	12Gbps	12	250	270	290	275	75.00	24	21	3.6000	10.80	3000	
			10	4Kn / 512e	1.8TB	2	24	12Gbps	12	210	190	230	230	150.00	19	18	8.5714	21.60	2520	
				4Kn / 512e	2.4TB	2	24	12Gbps	12	220	190	250	250	150.00	19	18	8.5714	21.60	2520	
				512n	300/600/1.2TB	2	24	12Gbps	12	190	200	195	195	100.00	16	16	6.3158	14.40	2280	
	SATA	Mission Critical	7.2	512e	2TB	2	24	6Gbps	12	115	120	130	130	166.67	11	10	17.3913	24.00	1380	
				512n	500GB/1TB	2	24	6Gbps	12	115	120	130	130	83.33	11	10	8.6957	12.00	1380	
			7.2	512e	2TB	2	24	6Gbps	12	115	120	130	130	166.67	11	10	17.3913	24.00	1380	
				512n	500/1TB	2	24	6Gbps	12	115	120	130	130	83.33	11	10	8.6957	12.00	1380	
3.5"	SAS	Business Critical	7.2	4Kn/512e	6TB	2	12	12Gbps	18.64	120	115	210	210	429.18	11	6	66.6667	48.00	720	
				4Kn/512e	8TB	2	12	12Gbps	18.64	114	109	199	199	429.18	11	6	66.6667	48.00	720	
				4Kn/512e	10TB	2	12	12Gbps	18.64	146	118	230	230	429.18	11	6	66.6667	48.00	720	
				4Kn/512e	12TB	2	12	12Gbps	18.64	148	118	190	228	429.18	11	6	66.6667	48.00	720	
				512n	1TB/2TB/4TB	2	12	12Gbps	18.64	115	120	190	195	214.59	10	6	34.7826	24.00	690	
	SATA		Business Critical	7.2	512e	6TB	2	12	6Gbps	18.64	113	116	210	210	429.18	11	6	69.5652	48.00	690
					512e	8TB	2	12	6Gbps	18.64	114	109	199	199	429.18	11	6	69.5652	48.00	690
					512e	10TB	2	12	6Gbps	18.64	146	118	230	230	429.18	11	6	69.5652	48.00	690
					512e	12TB	2	12	6Gbps	18.64	148	118	228	228	429.18	11	6	69.5652	48.00	690
					512n	1TB/2TB/4TB	2	12	6Gbps	18.64	115	120	195	195	214.59	10	6	34.7826	24.00	690

*Values represent typical workloads and may vary depending on product models. **Values are max power limits of the class of drives in operational state. Note: The drive may consume more power during startup/ spinup. These are performance specifications at the drive level (not system level) obtained from the vendor site and from internal Dell testing. Values are for guidance only and subject to change and may vary in different environments. Copyright © December 2017 Dell Inc. or its subsidiaries. All Rights Reserved.