

RAID level comparison

RAID Type	Description	Relative Availability	Request rate (Read/Write)	Data rate (Read/Write)	Cost Factor (1)	Types of Applications
Level 0	Striping; No redundancy	Proportionate to number of drives; worse than single drive	Based on chunk-size/request-size ratio. Can optimize for request rate or data rate Large chunks: Excellent	Small chunks: Excellent	1.0	Applications requiring high performance for non-critical data
Level 1	Shadowing. Both shadow-set members need to be written, degrading write performance.	Excellent	Good/Fair	Fair/Fair	2.0	System drives, critical files
Level 0+1	Striping plus shadowing together. Both shadow-set members need to be written, degrading write performance.	Excellent	Based on chunk-size/request-size ratio. Can optimize for request rate or data rate Large chunks: Excellent	Small chunks: Excellent/Good	2.0	Any critical response-time application
Level 3	Striped data with dedicated parity drive. Drives are rotationally synchronized.	Excellent	Poor	Excellent	1.25	Large I/O request size applications, such as imaging, CAD
Level 5	Striped data and parity.	Excellent	Excellent/Fair	Fair/Poor	1.25	High request rate, read-intensive, data lookup
Level 6	Striped data and parity with two parity drives.	Best	Excellent/Poor	Good/Poor	1.5	High request rate, read-intensive, data lookup
Individual drives	No RAID. No redundancy.	Proportional to number of drives.	Identical to single drive	Identical to single drive	1.0	

(1) Cost factor is the approximate multiplier of ordinary drive cost to achieve a given level of RAID. RAID 3, 5, and 6 require parity data, which means adding one drive (RAID 3, 5) or two drives (RAID 6) in addition to required user capacity. In addition to the parity drive, you may want to have a spare drive available to serve as a hot spare. This overhead is *not* counted in the table. The cost factor in this table assumes a 4-drive user capacity RAID set. A larger RAID set would change the cost factors for RAID 3, 5, and 6. The cost factor does not include the costs of power, packaging, or the RAID controller or software.