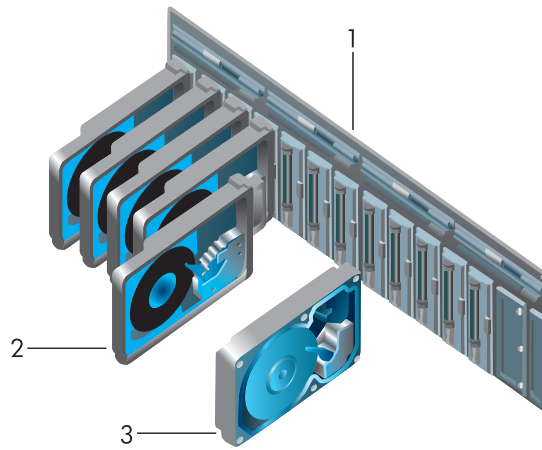


# HP ProLiant servers

## Serial attached technology overview



**Commonality**—SAS architecture accommodates Direct Attached Storage Devices for both SAS and SATA disk drives.

1. System backplane
2. SAS drives
3. SATA drives



## HP serial attached technology offers flexibility, scalability, performance and reliability.

### Serial attached SCSI drives (SAS) are the enterprise drive of choice.

Typical applications include: workload intensive environments such as database, e-mail, file and print. With the new SAS technology, HP helps customers store and manage information better. The latest evolution of SCSI—serial attached SCSI (SAS) drives can be used for mission-critical or performance-oriented applications. SAS drives are supported by a 3-year limited warranty.

### Serial attached ATA drives (SATA) are the entry level, light duty cycle drive of choice.

Typical applications include: front-end server environments such as log file and OS and nearline storage opportunities. SATA drives are also used for disk backup, mirroring or non-mission-critical reference data. SATA drives will support a 1-year limited warranty.

Both SATA and SAS drives can co-exist together on the same backplane within an HP ProLiant server, or in an HP drive enclosure, such as the HP StorageWorks Modular Smart Array 50 (MSA50), offering you the performance, reliability and flexibility to meet your most stringent data center needs.

### Small form factor SAS drives: 36 GB and 72 GB capacities at 10,000 rpm, 2.5" form factor

- Investment protection
  - 70% smaller package
- Higher reliability
  - Designed for 24x7 mission-critical applications
- Greater efficiency
  - Half the power consumption of 3.5" drives
  - Smaller form factor enabling better airflow
  - More spindles per platform
- Flexible configurations
  - More drive bays per server

### SAS drives: 36 GB, 72 GB, 146 GB capacities at 15,000 rpm, 3.5" form factor

- Better performance
  - Serial point-to-point connections

### SATA drives: 60 GB capacity at 5,400 rpm, 2.5" form factor

- Entry-level drive
  - Light-duty cycle, non-mission-critical applications

### Serial attached SCSI features and benefits

Feature	Benefits
Thinner cable and fewer signals	<ul style="list-style-type: none"> <li>• Improved chassis airflow and cooling resulting in easier cable routing for density</li> <li>• Faster HDD access times and improved IOPS</li> </ul>
Disk/backplane interoperability	<ul style="list-style-type: none"> <li>• Customer flexibility and scalability</li> <li>• Simplifies IT support</li> </ul>
Leverages industry standards and current software stack	<ul style="list-style-type: none"> <li>• Faster time to market and ease of transition</li> <li>• Improved interoperability performance</li> </ul>
3 Gb/s performance	<ul style="list-style-type: none"> <li>• Improved overall bandwidth</li> <li>• Growth roadmap to 12 Gb/s resulting in investment protection</li> </ul>
Smaller connectors	<ul style="list-style-type: none"> <li>• Small form factor drives</li> </ul>
Point-to-point topology	<ul style="list-style-type: none"> <li>• Dedicated, scalable throughput resulting in improved IOPS</li> <li>• System uptime and reliability</li> </ul>
Prefailure warranty	<ul style="list-style-type: none"> <li>• Allows scheduled system downtime</li> </ul>
Cyclical redundancy checking	<ul style="list-style-type: none"> <li>• Improved data integrity</li> </ul>

# HP ProLiant servers

## Serial attached technology overview

### SAS/SATA compatibility

HP ProLiant server model	SAS and/or SATA standard	Requires SAS upgrade kit*	SCSI U320 only
ML350 G4			●
ML350 G4p		●	
ML350 G4p SATA	●	●	
ML370 G4		●	
ML370 G4 SAS	●		
ML570 G3		●	
ML570 G3 SAS	●		
DL360 G4			●
DL360 G4p SATA	●		
DL360 G4p SAS	●		
DL380 G4			●
DL380 G4 SAS	●		
DL385			●
DL385 SAS	●		
DL580 G3		●	
DL580 G3 SAS	●		
DL585		●	
BL20p G3			●
BL25p			●
BL35p	●		
BL45p			●

\* SAS upgrade kit includes drive cage and cables. Need to purchase P600 Smart Array card separate of this kit.



### ML350\*\* upgrade to SAS—four easy steps

#### Step 1—Select a serial model.

3.0 GHz/2M Cache Serial—p/n 331889-xx1

3.2 GHz/2M Cache Serial—p/n 356816-xx1

3.4 GHz/2M Cache Serial—p/n 370508-xx1

#### Step 2—Select your 3.5" SAS hard drives.

36 GB/15K—p/n 375868-B21

72 GB/15K—p/n 375870-B21

146 GB/15K—p/n 375872-B21

#### Step 3—Order the P600 SAS controller (337972-B21) and a SAS cable.

#### Step 4—Installation

Install the drives into the ML350 G4p serial model and connect them to the P600 controller using the SAS cable.

\*\* The ML350 Server is the only HP ProLiant server to utilize 3.5" SAS drives. Please refer to the chart above for other server models that utilize 2.5" SAS/SATA drives.

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