



Dell Desktop Hardware Maintenance

4400, 4500, 4600,
4700, 8400

What Desktop Systems are in the CyberCenter

- 4700 (8) – L1, L3, L8, L11, L16 - L19
- 4600 (16) – L2, L7, L13, C1 – C13
- 4500 (2) – L6, L12
- 4400 (1) – L14
- 8400 (1) – L15
- Non-Dell (2) – L4, L5

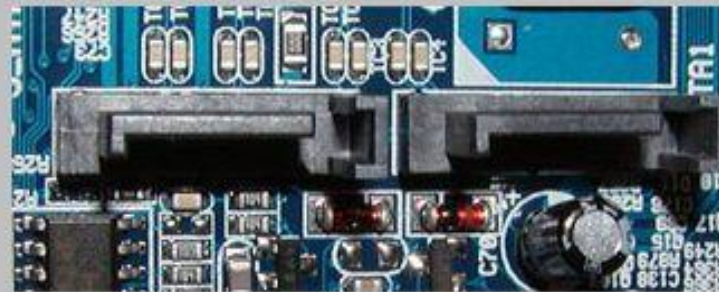
Model Comparison

Model	Available	Memory	HDrive	BUS	Speed
4700	2004	512MB	SATA	800MHz	2.8GHz
4600	2003	512MB	PATA	800MHz	2.6GHz
4500	2002	256MB	PATA	100MHz	1.8 GHz
4400	2001	256MB	PATA	100MHz	1.6GHz
8400	2004	512MB	SATA	800MHz	2.8GHz

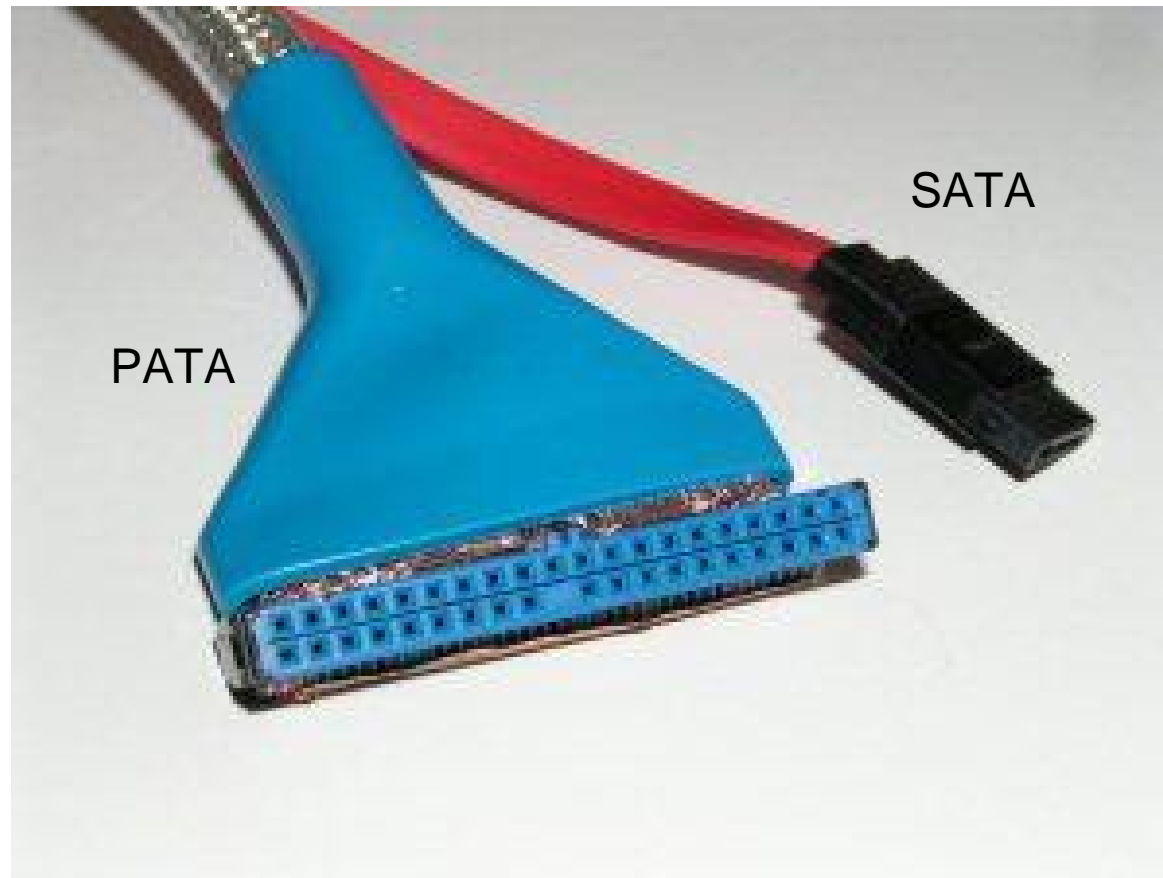
PATA verses SATA

	PATA	SATA
Speed	100MB/s	150MB/s 300MB/s 600MB/s Now / by 2005 / by 2008
Cable Length	18 inches	40 inches
Cable Pins	40	7
Power Pins	4	5
Data Trans Wires	26	2
Power Consumption	5V	250mV
Hot Swappable?	No	Yes
http://store.yahoo.com/directron/patasata.html		

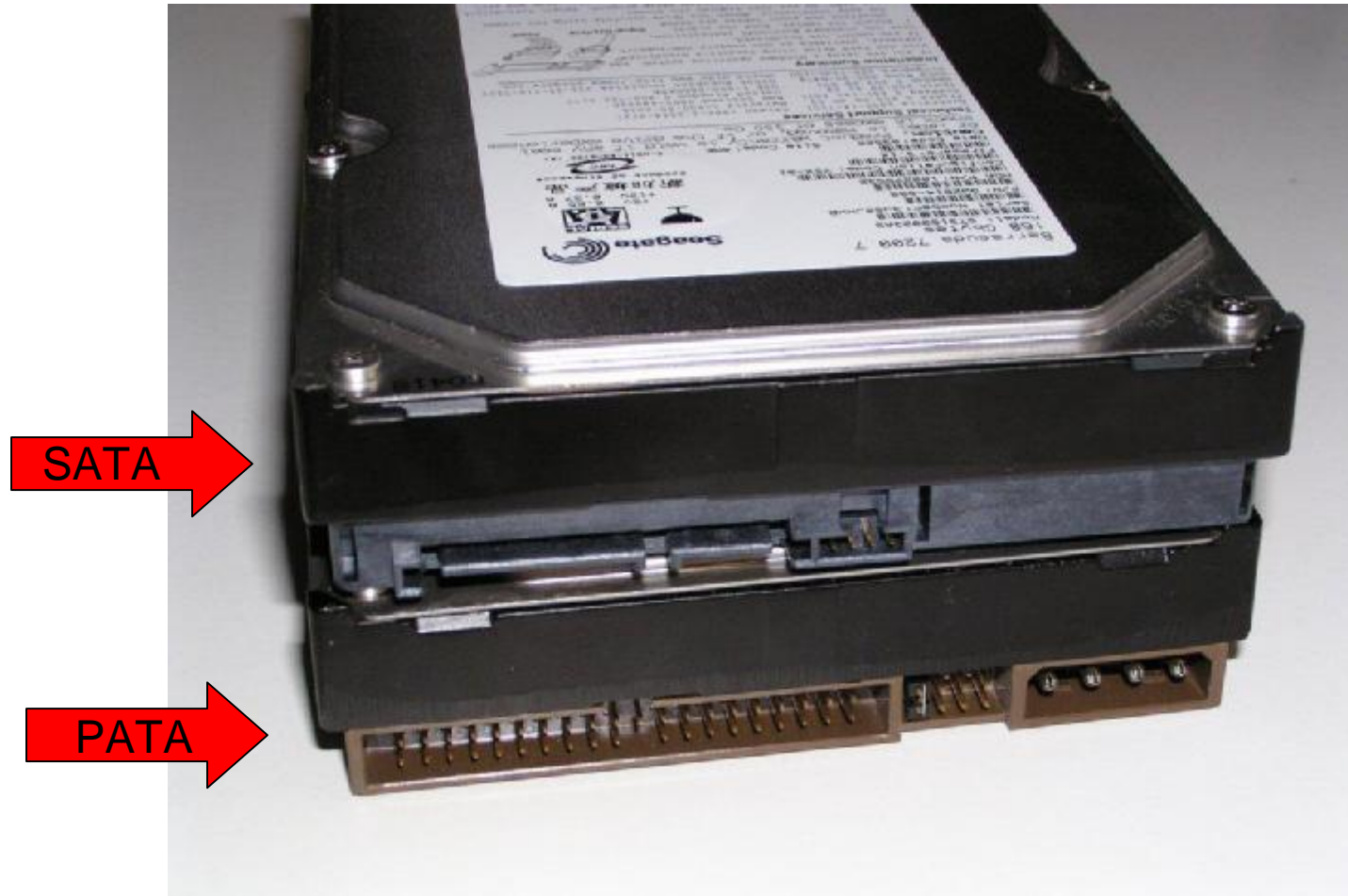
Connectors & Cables



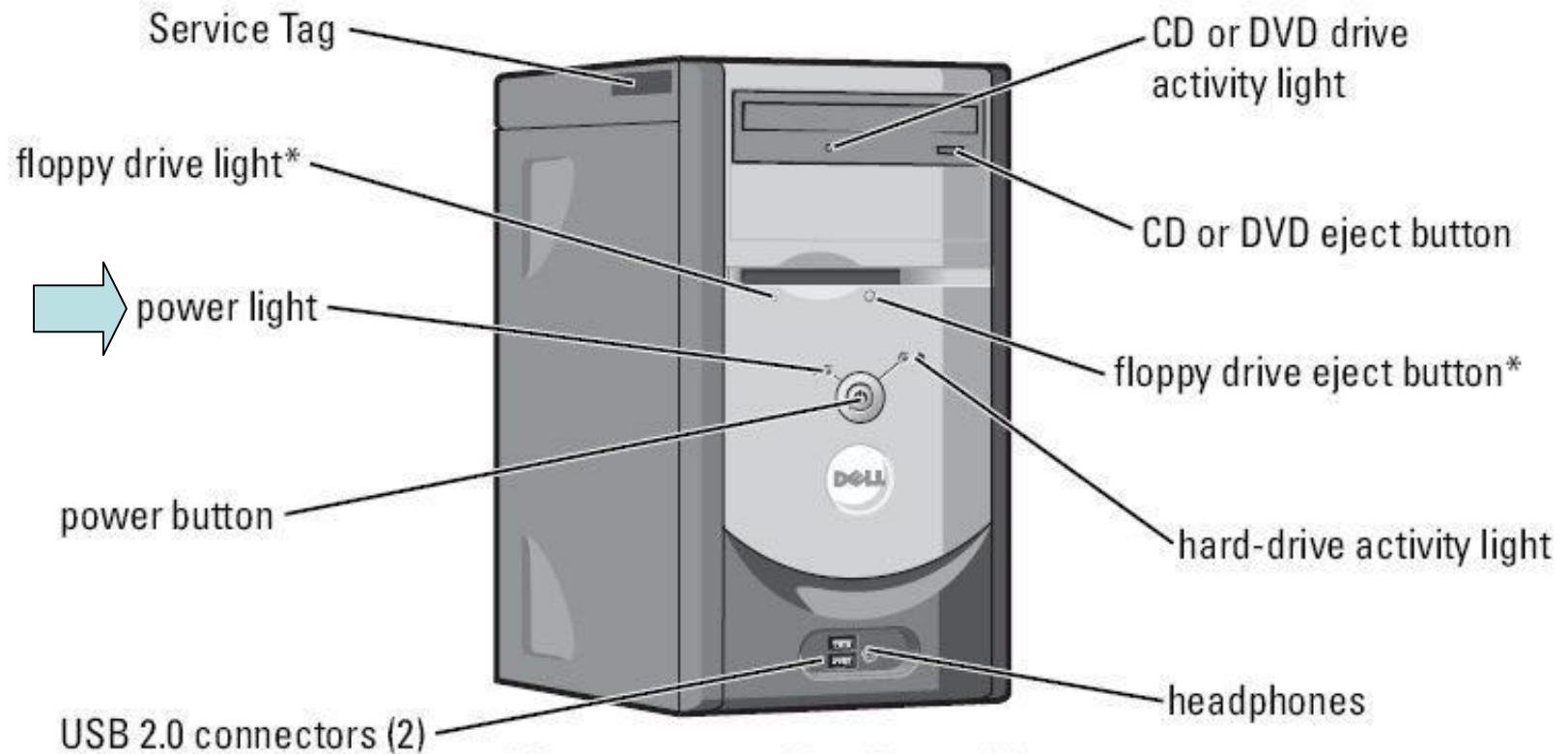
SATA Verses PATA Cables



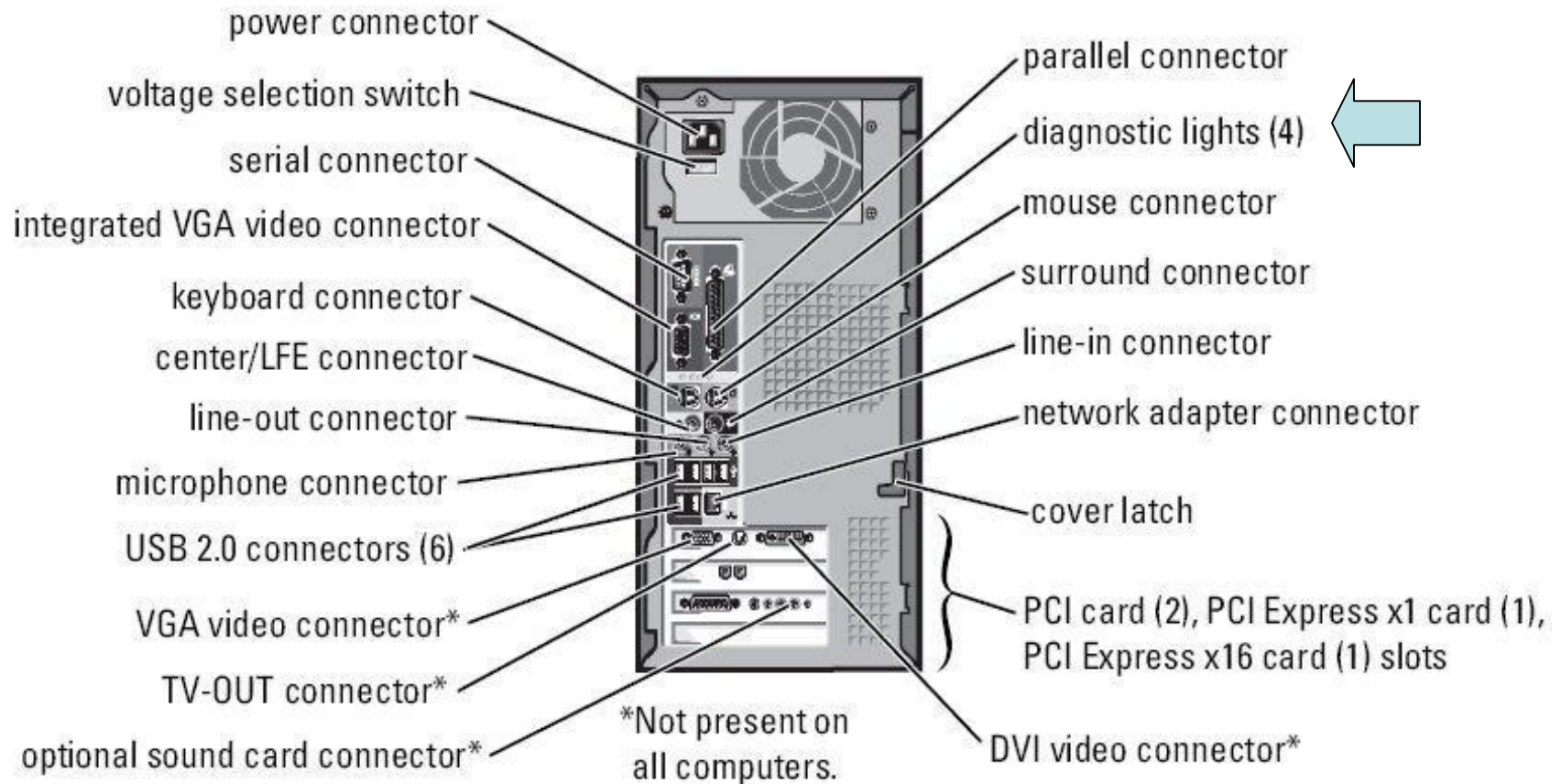
Drive Connectors



Dell Dimension 4700 – Front View



Dell Dimension 4700 – Rear View



4700 Problem Diagnosis


1. Check the Power Light
2. Check the Diagnostic Lights
3. Listen for Beep Codes*
4. Look for System Messages
5. Run System Diagnostics


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Power Light


- If the power light is green, the power status is good and the computer is functioning properly.
- If the power light is green and the computer is not responding, see "[Diagnostic Lights](#)."
- If the power light is blinking green, the computer is in standby mode. Press a key on the keyboard or move the mouse to resume normal operation.
- If the power light is off, the computer is either turned off or is not receiving power.

Diagnostic Lights

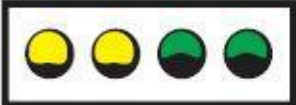
Light Pattern	Problem Description	Suggested Resolution
 A B C D	The computer is in a normal off condition or a possible pre-BIOS failure has occurred.	Plug the computer into a working electrical outlet and press the power button.

 = yellow

 = green

 = off

Example - Diagnostics


Light Pattern	Problem Description	Suggested Resolution
 <p>A B C D</p>	Memory modules are detected, but a memory failure has occurred.	<ul style="list-style-type: none">• If you have one memory module installed, reinstall it (see page 57) and restart the computer.• If you have two or more memory modules installed, remove the modules, reinstall one module (see page 57), and then restart the computer. If the computer starts normally, reinstall an additional module. Continue until you have identified a faulty module or reinstalled all modules without error.• If available, install properly working memory of the same type into your computer (see page 57).• If the problem persists, contact Dell (see page 103).


After Post Condition




A B C D

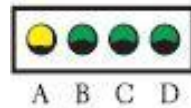
The computer is in a normal operating condition after POST. None.

 = yellow

 = green

 = off

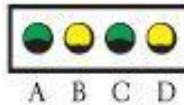
Sample Error Conditions



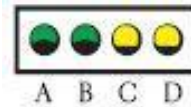
A possible USB failure has occurred.



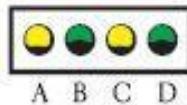
A possible floppy or hard drive failure has occurred.



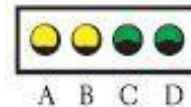
Memory modules are detected, but a memory configuration or compatibility error exists.



A possible expansion card failure has occurred.



A possible graphics card failure has occurred.



Memory modules are detected, but a memory failure has occurred.

Beep Codes Sample

Code	Cause
1-1-2	Microprocessor register failure
1-1-3	NVRAM
1-1-4	ROM BIOS checksum failure
1-2-1	Programmable interval timer
1-2-2	DMA initialization failure
1-2-3	DMA page register read/write failure
3-1-1	Slave DMA register failure
3-1-2	Master DMA register failure
3-1-3	Master interrupt mask register failure
3-1-4	Slave interrupt mask register failure
3-2-2	Interrupt vector loading failure
3-2-4	Keyboard Controller Test failure
3-3-1	NVRAM power loss

Diagnostic Message Sample

Message	Possible Cause	Corrective Action
8042 Gate-A20 error	The keyboard controller failed its test.	If you receive this message after you make changes in the system setup program, enter the system setup program and restore the original value(s).
Address Line Short!	An error in the address decoding circuitry in the memory has occurred.	Reseat the memory modules.
C: Drive Error C: Drive Failure	The hard drive is not working or is not configured correctly.	Ensure that the drive is installed correctly in the computer and defined correctly in the system setup program.
Cache Memory Bad, Do Not Enable Cache	The cache memory is not operating.	See "Contacting Dell" in your <i>Owner's Manual</i> for instructions on obtaining technical assistance.
CH-2 Timer Error	An error is occurring on the timer on the system board.	See "Contacting Dell" in your <i>Owner's Manual</i> for instructions on obtaining technical assistance.

2GB Dell Utility Area

Partition	Type	Size MB	Used MB	Unused MB	Status	Pri/Log
Disk 1						
DELLUTILITY (*)	FAT	2,047.3	8.3	2,039.0	None	Primary
WIN_XP_Pro (C:)	NTFS	24,003.4	18,082.3	5,921.0	Active	Primary
(*)	Extended	88,388.9	88,388.9	0.0	None	Primary
Swapper (D:)	NTFS	6,008.7	2,237.7	3,771.0	None	Logical
Smith_Data (E:)	NTFS	6,008.7	477.7	5,531.0	None	Logical
Photos (F:)	NTFS	10,001.4	6,147.6	3,853.8	None	Logical
Downloads (G:)	NTFS	20,018.5	8,506.7	11,511.8	None	Logical
Video Clips (X:)	NTFS	46,351.6	39,731.4	6,620.2	None	Logical
Disk 2						
DSK2_SYSBACKUP (M:)	NTFS	39,997.7	27,388.8	12,608.9	Active	Primary
(*)	Extended	116,330...	116,330.1	0.0	None	Primary
DSK2_DATABACKUP (...)	NTFS	40,005.6	19,687.8	20,317.8	None	Logical
Local Disk (O:)	NTFS	76,324.4	39,675.2	36,649.2	None	Logical

Diagnostics Main Menu


- 1 After the Dell Diagnostics loads and the Main Menu screen appears, click the button for the option you want.

Option	Function
Express Test	Performs a quick test of devices. This test typically takes 10 to 20 minutes and requires no interaction on your part. Run Express Test first to increase the possibility of tracing the problem quickly.
Extended Test	Performs a thorough check of devices. This test typically takes an hour or more and requires you to answer questions periodically.
Custom Test *	Tests a specific device. You can customize the tests you want to run.
Symptom Tree	Lists the most common symptoms encountered and allows you to select a test based on the symptom of the problem you are having.

Diagnostics

- 2 If a problem is encountered during a test, a message appears with an error code and a description of the problem. Write down the error code and problem description and follow the instructions on the screen.

If you cannot resolve the error condition, contact Dell (see page 103).

 **NOTE:** The Service Tag for your computer is located at the top of each test screen. If you contact Dell, technical support will ask for your Service Tag.

Diagnostics

- 3 If you run a test from the Custom Test or Symptom Tree option, click the applicable tab described in the following table for more information.

Tab	Function
Results	Displays the results of the test and any error conditions encountered.
Errors	Displays error conditions encountered, error codes, and the problem description.
Help	Describes the test and may indicate requirements for running the test.

Abbreviations

- ATA – Advanced Technology Attachment
- IDE – Integrated Drive Electronics
- PATA – Parallel ATA
- SATA – Serial ATA
- ESATA – External SATA
- AGP – Accelerated Graphics Port
- PCI – Peripheral Component Interface (Parallel)
- PCIe – PCI Express (Serial)
- POST – Power On Self Test

Definitions

- MB/sec (**M**ega**B**ytes per **SEC**ond, **M**ega**B**its per **SEC**ond) One million bytes per second. One million bits per second. Upper case "B" in MB/sec, MBytes/sec, MB/s or MBps means megabytes per second and is used for disk and tape transfer ratings. Lower case "b" in Mb/sec, Mbits/sec, Mb/s or Mbps means megabits per second and is used for transmission speeds in a network or in internal circuits. However, using "B" for byte and "b" for bit is not always followed and often misprinted.