

# Data Measurement Chart

Starting with the Data Measurement Chart, you can see the difference between things like a "Kilobyte" and a "Megabyte" and other computer memory terms. For example, an average web page might be about 16KB in size. To understand just how big that is, you can consult the first chart, the Data Measurement Chart.

The charts below will give you a clear understanding of:

1. the size of computer files
2. the speed of transferring those files over the Internet
3. and how fast those transfers are relative to the type of connection one has to the Internet. Remember, speed is everything.

There are three basic, simple things you need to know first:

1. Definitions of terms which express the size of computer files and/or computer data.
2. Definitions of terms which describe the speed at which various Internet connections will transmit data.
3. The difference between the speed of those Internet connections.

Next, you want to know definitions of terms which describe the speed at which various Internet connections will transmit data. The Data Transfer Rate Chart explains this and will tell you the difference between a "Kbps" connection or a "Gbps" connection.

The final chart, the Connection Speed Chart, shows the difference between having a 28.8K modem or a DSL connection and so forth.

Below the three charts begins the glossary definitions of terms used in video, film and Internet technology.

Data Measurement Chart	
Data Measurement	Size
Bit	Single Binary Digit (1 or 0)
Byte	8 bits
Kilobyte (KB)	1,024 Bytes
Megabyte (MB)	1,024 Kilobytes
Gigabyte (GB)	1,024 Megabytes
Terabyte (TB)	1,024 Gigabytes
Petabyte (PB)	1,024 Terabytes
Exabyte (EB)	1,024 Petabytes

Data Transfer Rate Chart			
Data Transfer Rates	Data Rate (per second)	Data Rate (per second)	Data Rate (per second)
Kbps or Kb (Kilobits per second)	1,000 Bits	125 Bytes	
Mbps or Mb (Megabits per second)	1,000,000 Bits	125,000 Bytes	122 Kilobytes
Gbps or Gb (Gigabits per second)	1,000,000,000 Bits	125,000,000 Bytes	119 Megabytes

Connection Speed Chart				
Internet Technology	Data Rate (per second)	Data Rate (per second)	Data Rate (per second)	Data Rate (per second)
28.8K Modem	28.8 Kbps	28,800 Bits	3,600 Bytes	3.5 Kilobytes
36.6K Modem	36.6 Kbps	36,600 Bits	4,575 Bytes	4.4 Kilobytes
56K Modem	56 Kbps	56,000 Bits	7,000 Bytes	6.8 Kilobytes
ISDN	128 Kbps	128,000 Bits	16,000 Bytes	15 Kilobytes
T1	1.544 Mbps	1,544,000 Bits	193,000 Bytes	188 Kilobytes
DSL	512 Kbps to 8 Mbps	8,000,000 Bits	1,000,000 Bytes	976 Kilobytes
Cable Modem	512 Kbps to 52 Mbps	53,000,000 Bits	6,625,000 Bytes	6,469 Kilobytes (6.3MB/sec)
T3	44.736 Mbps	44,736,000 Bits	5,592,000 Bytes	5,460 Kilobytes (5.3MB/sec)
Gigabit Ethernet	1 Gbps	1,000,000,000 Bits	125,000,000 Bytes	122,070 Kilobytes (119MB/sec)
OC-256	13.271 Gbps	13,271,000,000 Bits	1,658,875,000 Bytes	1,619,995 Kilobytes (1.5GB/sec)

Computer Technology Chart				
Computer Technology	Data Rate (per second)	Data Rate (per second)	Data Rate (per second)	Data Rate (per second)
ADB	256 Kbps	256,000 Bits	32,000 Bytes	31.2 Kilobytes
USB	12 Mbps	12,000,000 Bits	1,500,000 Bytes	1,464 Kilobytes (1.42MB/sec)
USB 2.0	480 Mbps	480,000,000 Bits	60,000,000 Bytes	58,593 Kilobytes

		Bits	Bytes	(1.42MB/sec)
<b>FireWire (a.k.a. "IEEE 1394" or "i.Link")</b>	400 Mbps	400,000,000 Bits	50,000,000 Bytes	48,828 Kilobytes (47.6MB/sec)
<b>Ultra ATA/33 (a.k.a. Ultra DMA/33)</b>	33 MB/sec			
<b>Ultra ATA/66 (a.k.a. Ultra DMD/66 or Fast ATA-2)</b>	66 MB/sec			
<b>SCSI-1</b>	5 MB/sec			
<b>SCSI-2</b>	5-10 MB/sec			
<b>Fast SCSI-2</b>	10-20 MB/sec			
<b>Wide SCSI-2</b>	20 MB/sec			
<b>Fast Wide SCSI-2</b>	20 MB/sec			
<b>Ultra SCSI-3 (8-bit)</b>	20 MB/sec			
<b>Ultra SCSI-3 (16-bit)</b>	40 MB/sec			
<b>Ultra-2 SCSI</b>	40 MB/sec			
<b>Wide Ultra-2 SCSI</b>	80 MB/sec			
<b>Ultra-3 SCSI</b>	160 MB/sec			
<b>Serial ATA (Gen 1)</b>	150 MB/sec	1.2 Gbps		
<b>Serial ATA (Gen 2)</b>	300 MB/sec	2.4 Gbps		
<b>Serial ATA (Gen 3)</b>	600 MB/sec	4.8 Gbps		

<b>Video Format Chart</b>	
<b>Video Formats</b>	<b>NTSC Resolution (525 Vertical Lines)</b>
<b>8mm</b>	250 Horizontal Lines
<b>VHS</b>	250 Horizontal Lines
<b>VHS-C</b>	250 Horizontal Lines
<b>Hi8</b>	400 Horizontal Lines
<b>S-VHS</b>	400 Horizontal Lines
<b>DV</b>	500 Horizontal Lines
<b>DVD</b>	500 Horizontal Lines

<b>Audio/Video Chart</b>				
<b>Audio/Video Technology</b>	<b>Data Rate (per second)</b>	<b>Data Rate (per second)</b>	<b>Data Rate (per second)</b>	<b>Data Rate (per second)</b>
<b>CD</b>	1.4112 Mbps	1,411,200 Bits	176,400 Bytes	172 Kilobytes

<b>DVD</b>	10 Mbps	10,000,000 Bits	1,250,000 Bytes	1,220 Kilobytes (1.1MB/sec)
<b>DV</b>	30.1 Mbps	30,195,712 Bits	3,774,464 Bytes	3,686 Kilobytes (3.6MB/sec)
<b>DLP</b>	37 Mbps to 43 Mbps	43,000,000 Bits	5,375,000 Bytes	5,249 Kilobytes (5.2MB/sec)

Data Comparison Chart							
Kilobits (Kbps)	Bits (bps)	Megabits (Mbps)	Bytes (Bps)	Kilobytes (KBps)	Megabytes (MBps)	Minutes On 650MB CD	Minutes On 4.7GB DVD
28	28,000	0.028	3,500	3.41	0.00334	3,245	24,031
30	30,000	0.03	3,750	3.66	0.00358	3,029	22,429
56	56,000	0.056	7,000	6.83	0.00668	1,622	12,015
80	80,000	0.08	10,000	9.76	0.00954	1,135	8,410
100	100,000	0.1	12,500	12.20	0.01192	908	6,728
150	150,000	0.15	18,750	18.31	0.01788	605	4,485
200	200,000	0.2	25,000	24.41	0.02384	454	3,364
300	300,000	0.3	37,500	36.62	0.03576	302	2,242
500	500,000	0.5	62,500	61.03	0.05960	181	1,345
800	800,000	0.8	100,000	97.65	0.09537	113	841
900	900,000	0.9	112,500	109.86	0.10729	100	747
1,000	1,000,000	1	125,000	122.07	0.11921	90	672
2,000	2,000,000	2	250,000	244.14	0.23842	45	336
4,000	4,000,000	4	500,000	488.28	0.47684	22	168
5,000	5,000,000	5	625,000	610.35	0.59605	18	134
10,000	10,000,000	10	1,250,000	1,220.70	1.19209	9	67
15,000	15,000,000	15	1,875,000	1,831.05	1.78814	6	44
30,000	30,000,000	30	3,750,000	3,662.10	3.57628	3	22