

56K Modem Information

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How does 56K modem technology work?

This modem uses 56K modem technology to reach speeds up to 56Kbps.* 56K modem technology enables users to access information and E-mail on corporate networks, the Internet and other online services at speeds up to 56Kbps over standard phone lines.

The 56Kbps modem technology utilizes the fact that today's telephone network infrastructure is primarily digital. With this new technology, speeds up to 56Kbps can be achieved downstream (when downloading data from the "Host" modem) when all of the following conditions are met:

1. The line must be digitally terminated at the host side.
2. The connection can only go through a single digital to analog conversion (which means that satellite transmission and communications through digital PBXs will not operate at 56Kbps).
3. There must be two compatible modems: one at the "Host" and one on the notebook computer. For your Intel modem, this means that the "Host" modem must support the V.90 standard or use the K56flex technology.

Different Flavors of 56K and the V.90 Standard

There are different flavors of 56K technologies available today. Your Intel modem uses one type of 56K technology called *K56flex*. This means that your Intel modem can connect at speeds up to 56K with K56flex compatible modems. When connecting with non-K56flex modems, your Intel modem connects at speeds to 33.6Kbps, unless you have upgraded with V.90 firmware.



There is an official 56K standard called V.90 that is expected to be ratified in 1998 by the ITU (The International Telecommunications Union, the global standards body which develops and approves telecommunications standards.) Because Intel is a strong advocate of standards-based products, Intel will be compatible with this standard once it is approved. When the ITU 56K standard is approved, your Intel modem can be upgraded with a free software update available on the Intel web site (see page 4).

How can I improve my 56K connections?

First, check the Intel web site for modem firmware updates (see Note on page 4). Second check with your service provider to verify that they are using V.90 or K56flex technology with the latest revisions.

In addition, there are two different modem settings you can change to improve your K56flex connections. These commands can be added to an application's initialization string or sent directly to the modem by using any communications or terminal application. When sending the commands by themselves, start the command with AT (example: AT+MS=V34), and press the Enter key. When adding the command to an application's initialization string, the "AT" should already be present.

Changing Top Speed (+MS Modulation Selection)

You can set the top speed at which your modem attempts to negotiate at. The default is K56 (32000 to 56000 bps).

Hint

If you routinely try to connect to non-K56flex modems or are having trouble establishing connections, then try to lower the "top speed" by changing the +MS setting to +MS=V34 or lower.

+MS=K56	K56flex (32000 to 56000 bps)
+MS=V34	V.34 (2400 - 33600 bps)
+MS=V32B	V.32bis (4800 - 19200 bps)
+MS=V32	V.32 (4800 or 9600 bps)
+MS=V23C	V.23 with constant carrier (1200/75 or 75/1200 bps)
+MS=V22B	V.22bis (2400 bps)
+MS=V22	V.22 (1200 bps)
+MS=V21	V.21 (300 bps)
+MS=B212	Bell 212A (1200 bps)
+MS=B103	Bell 103 (300 bps)

Change Setting For Particular Type of Location (S108 - Digital Loss Selection)

The S108 setting can be changed to improve the likelihood of obtaining a K56 connection, depending on your type of location. S108 changes how digital loss is to be used during a K56flex connection.

Hint

If you are connecting at speeds greater than 33.6Kbps, but want to get closer to a top speed of 56Kbps, try changing your S108 setting. Different settings may improve your connection speed, depending on your type of location.

S108=0	0 dB digital loss (with no robbed bit signalling)
S108=1	3 dB digital loss (recommended for use with PBX systems)
S108=2	2 dB digital loss
S108=3	3 dB digital loss (normal)
S108=6	6 dB digital loss (recommended for long distance, default setting)
S108=7	0 dB digital loss

In which countries can my Intel modem achieve 56K speed?

Currently, the 56K modem reaches maximum download speeds in most countries in Europe, the Pacific Rim, and the Americas. Intel is working with many other countries to certify 56K modem operation. Because these efforts are ongoing, the list of currently certified countries is posted on our support web site (see box below).

Note

- Check the latest Intel Mobile product news at **www.intel.com/network/mobile**.
- Download software, firmware, and country-specific upgrades from **support.intel.com** or your local Intel BBS.

Special connector equipment for Austria, Germany, and Switzerland.

These three countries require a special modem connector called a Billing Tone Filter (BTF). If you purchased your PRO/100 LAN+Modem56 in one of these countries, the BTF connector is included with the product. The letters "BTF" are on the back of the connector.

Parts and Accessories

For the most recent list of PRO/100 LAN+Modem56 parts and accessories, visit www.intel.com/network/mobile. Look for a link called "Parts and Accessories" on this page.

* 56Kbps refers to server download speed only, and requires compatible modems at both the user and server sites. Download speeds of 56K are currently unavailable in the U.S. Other country-specific regulations may impose similar limits. For additional technical information on K56flex, go to www.intel.com/network/mobile. K56flex is a trademark of Lucent Technologies and Rockwell International.