Document # 2701

How Backpacks use an Enhanced Parallel Port

EPP stands for Enhanced Parallel Port. Parallel ports can operate in several modes. The three most common types of parallel port modes are Uni-Directional, Bi-Directional, and EPP. A Uni-Directional parallel port is also known as a "Standard Parallel Port" and has the slowest input speeds, since only 4 return lines are available to receive data back into the computer. Since a Bi-Directional parallel port is able to receive 8 lines of data into the computer, a Bi-Directional parallel port receives data twice as fast as a Uni-Directional parallel port. The fastest parallel port is an Enhanced Parallel Port (EPP.)

Since all Backpacks connect to the parallel port, the mode of the parallel port will directly influence the Backpack's data transfer speed. For example, the Micro Solutions Backpack 8X CD-ROM drive is capable of sending data into the computer's parallel port at a maximum of 1200KB/s. 1200KB/s is the typical transfer rate for all 8X CD-ROM drives. This speed is only achievable if the Backpack is operating on an Enhanced Parallel Port (EPP.) If the parallel port is only capable of Bi-Directional communication, the 8X Backpack CD-ROM will send data at an average speed of 200KB/s. If the parallel port is only capable of Uni-Directional communication, the 8X Backpack CD-ROM will send data into the computer at an average speed of 100KB/s. CD-ROM transfer rates of 100KB/s to 200KB/s are typically found with 1X and 2X CD-ROM drives. An Enhanced Parallel Port allows the Backpack to operate much faster than Bi-Directional and Uni-Directional parallel ports and is highly recommended.

If you have a Backpack CD-ROM Drive and you would like to determine which of the three modes has been detected and is being used by your Backpack, double-click the BACKPACK icon in Windows 95 or Windows NT Control Panel. (16-bit software users, run CDDRIVES /X from the C:\BPCDROM directory or from the Backpack CD-ROM installation diskette.) Several lines of Backpack statistics will appear on the screen. The line labeled PORT will tell you which mode your Backpack is presently operating in. In order for CDDRIVES /X to provide full Backpack statistics, the Backpack's 16-bit software driver must be installed and the Backpack must be recognized by the computer when you first boot the system.

If you have a Backpack Hard Drive, run the program: HDDRIVES /X from the C:\BPHD directory, or from the Backpack Hard Drive's installation diskette. In order for HDDRIVES /X to provide full Backpack statistics, the Backpack's 16-bit software driver must be installed and the Backpack must be recognized by the computer when you first boot the system. 32-bit Backpack driver users can double-click the BACKPACK icon in Windows 95 or Windows NT Control Panel.

To determine which mode a Backpack Tape Drive is operating in, run the program: TAPEDIAG from the QBWIN or QBACKUP directory. The TAPEDIAG.EXE program shipped with backup software Version 4 - 5.1b. If the TAPEDIAG.EXE program cannot be found in the C:\QBWIN or C:\QBACKUP directories, check the Backpack software installation diskette(s), or download a complete driver/diagnostic package which contains TAPEDIAG.EXE and many other useful software programs (all detailed in the README.TXT) from our BBS or WebSite under the filename: BPTD_DRV.EXE. (Not compatible with the Backpack 8000t, Model 142150).

If you have installed the Backpack's 32-bit driver in Windows 95 or Windows NT for any of the compatible Backpacks (including Backpack CD-ROM, Backpack Hard Drive, Backpack pd/cd, and Backpack 8000t) you can determine the mode your Backpack is operating in by double-clicking on the BACKPACK icon located in Control Panel. The second

line of the box labeled PORT will tell you which parallel port mode (Uni, Bi, or EPP) your Backpack is operating in.

Most current computer models (desktops and notebooks) are designed to allow the user to change the mode of the parallel port. This is usually done within the computer's CMOS or BIOS "SETUP" screen. Please refer to the documentation provided with your computer for details on how to access your computer's CMOS or BIOS "SETUP" screen. Once the SETUP screen is accessed, look for a section of information that deals with the computer's "Printer Port," "Parallel Port," or "LPT Port". Select the fastest mode that is available. If you have several different parallel port modes to choose from, it is ok to try them all to see which one provides the fastest Backpack speeds. It is also important to know that if you only have one parallel port in your computer, it will always be referred to by DOS, Windows, and Windows 95 as LPT1, even if you have chosen an alternate parallel port address in your BIOS SETUP.

Some computer's claim to have enhanced parallel ports built-in, but have not fully implemented all of EPP requirements as detailed in the IEEE 1284 port specifications. This may cause your system to produce "NOT FOUND" error messages, "lockups," or read errors when trying to detect or use your Backpack drive. In such cases, an updated Backpack device driver should be obtained and installed, or the Backpack's use of EPP functions must be disabled.

- Please refer to Technical Support Documents #2210 and #2212 for details on how to fix EPP related "NOT FOUND" error messages or random lock-ups for a BACKPACK CD-ROM drive.

- Please refer to Technical Support Document #2100 for details on how to fix EPP related "TAPE DRIVE NOT FOUND" messages or random lock-ups for a BACKPACK TAPE DRIVE.

- Please refer to Technical Support Document #2303 for details on how to fix EPP related "NOT FOUND" error messages for a BACKPACK HARD DRIVE.

Hewlett Packard and Microsoft Corporation have recently developed a new mode of parallel port communication called ECP, Extended Capability Port. ECP was designed for high-speed communication with printers or similar devices whereas EPP was designed for high-speed communication with parallel port peripherals such as the Backpack. All Backpacks will operate on an ECP port but will not utilize its extended capabilities. Backpacks operate on an ECP port as if it were a standard Uni-Directional or Bi-Directional parallel port.

Most Toshiba laptops have an ECP port. Therefore, EPP Backpack performance is not possible on these systems. More information on using Backpacks on Toshiba computer is available in Technical Support Document #2850

Windows 95 provides support for the ECP protocol, which may impede maximum Backpack performance in some configurations. More information on this topic is available in Technical Support Document #2710.

If your computer system does not offer EPP as an available parallel port mode, you can purchase a 16-bit (ISA) EPP card for your system. Most computer stores sell enhanced parallel ports that install into one of your computer's available expansion slots. If your system is a laptop computer with an available PCMCIA (PC-Card) slot, you can install a PCMCIA (PC-Card) enhanced parallel port. Please refer to Technical Support Document #2702 for a list of several manufacturers of 16-bit internal EPP and PCMCIA cards.