3COM Vector FDDI NT Device Driver, 03/17/94

This diskette contains version 2.04 of the 3COM 3C770 FDDI driver for NT 3.5 only.

If you are replacing the original NT 3.1 FDDILINK release, then you must completely remove that driver and reboot before installing this release. The original release had driver names FLNK1.SYS, FLNK2.SYS, etc. The later release only has one file name: FLNK.SYS.

If you are updating a FDDI drivecr dated May 23, 1994 or later, then follow these instructions and reboot your machine.:

cd %SystemRoot%\System32\Drivers
del flnk.bak
ren flnk.sys
copy a:\win_nt\flnk.sys

To install all FDDI adapters for the first time, unzip the archive onto your floppy :

    a:
    cd \
    pkunzip -d c:3comfddi.zip

Using the control panel network applet, install the driver using 'Add Adapter', '<Other - Manufacturer Disk Required>' and referencing A:\WIN_NT when asked for the installation diskette.

The installation will auto-detect all FDDI adapters present and install them accordingly.

If there are errors during startup, see the event log manager for details in the Administrative Tools window. In fact, you should look there the first time or two until you are satisfied that there are no errors. The driver may generate an error if it cannot allocate all of the requested receive or transmit buffers. In that case, it will attempt to allocate the minimum amount of buffer space so as to continue with the driver load process. If that happens, the driver will generate an error log entry stating that there were insufficient memory resources.

To enable dual-homing, use the registry editor and set DualHoming to 1 for each flnkX adapter expected to participate in the dual homing group. Note that up to 4 adapters can participate. Also note that each adapter must be on a different IRQ. Remember to disable the bindings for all but one of the adapters in a dual homing group (See 'Bindings' in the control panel network applet).

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Registry Variables

Several driver parameters are configurable. These parameters are set in the registry under the key that represents the adapter instance. For example, HKEY_LOCAL_MACHINE\ System\CurrentControlSet\Services\FLNK1\Parameters is a path to the parameters section for the first FDDI adapter installed in the machine. Any out of bounds values read from the parameters section are forced to default. If any combination of parameters creates illegal values, then the defaults are again chosen. The registry key FLNK1 may be different depending on how many other network adapters have been installed prior to this one, e.g., FLNK2.

Registry values can be edited by using the registry editor REGEDT32.EXE.

NDIS Registry Parameters

BusType
This variable remains constant and must be 2.

SlotNumber
This variable specifies which slot the adapter must occupy. If a FDDILINK adapter is not found in the indicated slot, then the driver will fail with the message '3COM 3C770 FDDI Adapter 1 failed to function' in the error log (see Administrative Tools - Event Viewer).

BusNumber
NT provides the ability to utilize multiple I/O buses. Although the bus number is not generally useful to the device driver, it must be provided as an input during adapter registration as part of the adapter information structure. There is no default value and must be present in the registry. On a PC-AT EISA machine, it's always 0.

DualHoming
To enable dual-homing (or resilient link), use the registry editor and set DualHoming to 1 for each flnkX adapter expected to participate in the resilient link process. Note that up to 4 adapters can participate. Also note that each adapter must be on a different IRQ. Remember to disable the bindings for all but one of the adapters in a dual homing group (See 'Bindings' in the control panel network applet).

NumRcvDesc
The driver dynamically allocates this number of receive descriptors. Each receive descriptor is a software structure used by the driver to reference an FSI descriptor. Given the hardware requirements, this implies that NumRcvDesc must be a power of two in the range supported by the hardware (2-32K). If not defined in the registry, the default value used is 32. The amount of receive memory allocated to an adapter instance is determined by the following formula:

Memory Size = NumRcvDesc * RcvBuffSize

RcvBuffSize

Each receive descriptor references a block of uncached memory where incoming packet fragments are placed by the busmaster adapter. The size of each block is restricted by the adapter and must be a power of two in the range supported by the adapter (256-8K). If not defined in the registry, the default value used is 512.

NumXmitDesc

The driver dynamically allocates this number of structures to manage outgoing packets submitted by the protocol and the SMT. There is a one to many relationship between software transmit descriptor structures and hardware FSI descriptors in the transmit ring. For a normal protocol, a good ratio is one transmit descriptor for every 5 FSI descriptors. If not defined in the registry, the default value used is 1.

NumXmitFsiDesc

The transmit ring is defined to consist of this many FSI descriptors. The value must be a power of two in the range supported by the hardware (32-32K). If not defined in the registry, the default value used is 32.

RxIndicateLimit

It's possible on a very busy machine that the FDDI adapter could monopolize the CPU by continuously processing received packets. RxIndicateLimit specifies how many received packets that can be processed without relinquishing the CPU. The default is 10.

TxCompleteLimit

TxCompleteLimit specifies how many transmitted packets that can be processed without relinquishing the CPU. The default is 10. (see previous discusssion for RxIndicateLimit).

InterruptsSerialized

This flag specifies whether receive indications and transmit completions are serialized on a multiprocessor machine. It's a workaround for NDIS specification violations in the Microsoft test protocol. The default value is 1. If cleared to 0, then multiple threads are allowed to be active within the FDDILINK driver.

SMT Registry Parameters

For proper operation on some networks, it may be necessary to adjust certain SMT timer values. The following registry parameters, though combined with the NDIS registry parameters, also affect the SMT.

treq

The SMT T_Req timer defaults to 165,000 microseconds if the registry parameter does not exist or is out of range. The range varies from 4000 to 165,000.

tmax

The SMT T_MAX timer defaults to 167,772 microseconds if the registry parameter does not exist or is out of range. The range varies from 165,000 to 167,772.

tvx

The SMT T_Vx timer defaults to 2611 microseconds if the registry parameter does not exist or is out of range. The range varies from 2500 to 3500.

mode

To change the SMT operation mode from it's default 'auto mode' value of 0, set the 'mode' registry parameter to 62 (6.2 mode) or 72 (7.2 mode). If the value is out of range or not present in the registry, it defaults to 0.