Overview

Models

NOTE: The 3X-DEFPA-*C Family of FDDI NICs is **retiring**. Customers are encouraged to purchase any FDDI NICs that they may require ASAP in order to insure supply, and/or to move their applications to 10/100/1000BASE-T UTP Ethernet, or 1000BASE-SX MMF Ethernet options. There is a finite quantity of FDDI NICs available, and these are expected to run out sometime between April 2004 and June 2005.

PCI to FDDI SAS MMF NIC with duplex SC	3X-DEFPA-AC
PCI to FDDI DAS MMF NIC with duplex SCs	3X-DEFPA-DC
PCI to FDDI DAS CAT 5 UTP NIC with RJ45s	3X-DEFPA-MC
PCI to FDDI SAS CAT 5 UTP NIC with RJ45	3X-DEFPA-UC

Introduction

The DEFPA family of FDDI NICs includes support for Multi-Mode-Fiber (MMF) and CAT 5 Unshielded Twisted Pair (UTP) copper media types, in both Single Attachment Station (SAS) and Dual Attachment Station (DAS) configurations. The MMF options utilize "duplex SC" connectors, and the UTP options utilize RJ45 connectors. All 3X-DEFPA-*C NICs provide a Universal PCI bus interface that implements both 3.3 and 5.0 Volt bus signaling and require a single PCI "BusMaster" capable slot.

3X-DEFPA-AC

Universal PCI to Single Attachment Station (SAS) FDDI Controller uses duplex optics with "SC" connectors (LCF-PMD), and supports up to 2KM of multi-mode fiber (MMF) between stations. This SAS adapter supports high performance full-duplex operation when connected point-to-point with a cooperating full-duplex FDDI switch or adapter.

3X-DEFPA-DC

Universal PCI to Dual Attachment Station (DAS) FDDI Controller uses a pair of duplex optics with "SC" connectors (LCF-PMD) and supports up to 2KM of multi-mode fiber (MMF) between stations. This DAS adapter:

1. Supports high performance full-duplex operation when connected point-to-point with a cooperating full-duplex FDDI switch or adapter
2. Auto-configures to support high availability "dual-homed" configurations

In addition, the -DC option includes support (RJ12) for connecting an optional, external third party, Optical Bypass Relay (OBR).

3X-DEFPA-MC

Universal PCI to Dual Attachment Station (DAS) FDDI Controller uses a pair of ANSI copper TP-PMDs (RJ45) and supports up to 100M of CAT 5 Unshielded Twisted Pair (UTP) copper cable between stations. This DAS adapter:

1. Supports high performance full-duplex operation when connected point-to-point with a cooperating full-duplex FDDI switch or adapter
2. Auto-configures to support high availability "dual-homed" configurations

3X-DEFPA-UC

Universal PCI to Single Attachment Station (SAS) FDDI Controller uses the ANSI copper TP-PMD (RJ45) and supports up to 100M of CAT 5 Unshielded Twisted Pair (UTP) copper cable between stations. This SAS adapter supports high performance full-duplex operation when connected point-to-point with a cooperating full-duplex FDDI switch or adapter.

Performance

Full-Duplex Operation	The 3X-DEFPA-*C family of FDDI NICs uniquely provide the ability to auto-negotiate to operate in full-duplex mode when connected point-to-point with another DEFPA, or cooperating FDDI switch. Full-Duplex mode eliminates the token, and allows the DEFPA to simultaneously transmit and receive packets without the latency associated with token rotation. Full-Duplex mode allows the DEFPA to sustain aggregate data rates in excess of 100Mbps.
Bus-Mastering	The 3X-DEFPA-*C uses linked-list, scatter/gather, bus-mastering technology to maximize throughput and optimize host system utilization.
Large One Megabyte Packet Buffer	In heavily loaded, directed address, high-end server operating environments, the DEFPA's large, one megabyte packet buffer allows it to survive most extended host CPU bus latency occurrences without dropping or aging out packets.

Security/Reliability

Network Fault Tolerance	FDDI, by design, provides automatic fail-over mechanisms at the hardware level. or example, with its dual-counter-rotating ring architecture, FDDI will automatically recover from any single point failure in the ring (NIC, port, or media). In addition, a DAS NIC can be connected in a "dual-homed" configuration where each of its two ports are connected to different Wiring Concentrators or Switches in the same network. One of the port connections operates as the primary/active connection, and the other port operates as the back-up/hot-stand-by connection. On-board FDDI Station Management (SMT) constantly monitors the quality of the links, and in the event of a primary link failure, automatically transfers operation to the secondary link. This transfer is normally a sub-second event and transparent to most applications. The on-board SMT continues to monitor the links, and when the failed link quality returns to normal, the hardware automatically transfers operation back to the primary link. The dual-homed configuration provides sub-second fail-over for link and network box failures. In the event of a NIC failure, higher-level driver and/or protocol levels within the host CPU manage the fail-over to a back-up NIC. Tru64 UNIX NetRain or OpenVMS Cluster utilities manage the NIC to NIC fail-over.

Ease of Use

Plug and Play	The 3X-DEFPA-*C features a robust PCI Plug-and-Play capability and PCI 2.2 support for conflict-free auto configuration.
Auto-negotiation	The 3X-DEFPA-*C will automatically negotiate to operate in either half (normal token rotation mode) or full-duplex (no token) mode, and to configure itself for SAS, DAS, or dual-homed (auto port fail-over) operation.
Troubleshooting	LEDs indicate link status, configuration, and network activity for "at-a-glance" troubleshooting.
Warranty	Maximum - The remaining warranty of the HP AlphaServer in which it is installed. Minimum - 1-year Return-to-Factory with Advance Exchange **NOTE:** Certain restrictions and exclusions apply. Contact 1-800-OK-COMPAQ for details.
Host Platform Support and Configuration Rules	Refer to the Supported Options List for specific AlphaServers or AlphaStations at: http://h18002.www1.hp.com/alphaserver/ to determine support status (hardware configuration rules, minimum supported revisions for operating systems, console firmware, and other related layered products).
Driver Support and Where to Find It	Driver Support is provided as part of the host AlphaServer or AlphaStation Operating System Distribution - Tru64 UNIX and OpenVMS. As stated above, refer to the respective host Alpha system Supported Options List http://h18002.www1.hp.com/alphaserver/ to determine support and any required patch kits

Ordering Information

NOTE: Before ordering, refer to the Supported Options List (SOL) for specific AlphaServers or AlphaStations at: http://h18002.www1.hp.com/alphaserver/ to determine support status (hardware configuration rules, minimum supported revisions for operating systems, console firmware, and other related layered products).

3X-DEFPA-xx family of FDDI NICs

Part Number	Description
3X-DEFPA-AC	PCI to FDDI SAS MMF NIC with duplex SC connector
3X-DEFPA-DC	PCI to FDDI DAS MMF NIC with duplex SC connectors
3X-DEFPA-MC	Universal PCI to FDDI DAS CAT 5 UTP NIC with RJ45 connectors
3X-DEFPA-UC	Universal PCI to FDDI SAS CAT 5 UTP NIC with RJ45 connector

New Universal PCI Features

- PCI Universal I/O Bus drivers capable of supporting either +5V or +3.3V PCI bus signal levels using the PCI Vi/o power rail.
- Serial ROM (SROM) interface - for programming configuration space register values at boot/power up (including Subsystem Vender ID and Subsystem I.D).
- PCI Local Bus V2.2 compliant. This includes some changes and additions to the Configuration Space Header.
- "New Capabilities" - adds bit and byte pointer in Configuration Space. Non-default values may be programmed via SROM
- Power Management supports "D0" and "D3" states. All non-default register values may be programmed via SROM.
- Vital Product Data (VPD) in SROM.
- Support for PCI Memory Read Line and Memory Read Multiple commands.
- PCI Hot-Plug Support

DEFPA Family Common Features

- Delivers full speed 32-it PCI DMA bus transfers at up to 132 Mbyes/sec
- Bus-Master, linked-list, scatter/gather, dual-DMA engines
- On-bard FDDI SMT V7.3 Processing using a Motorola 68K
- DMA burst size adjustable to match host PCI bridge FIFO (4 -> 16 long words)
- 928 Kbytes of Packet RAM
- Allows multiple options to be installed in a host system (requires 128 Bytes of I/O address space per controller)
- 62 User Programmable Multi-Cast Addresses
- PHY LED per port (1 for SAS, 2 for DAS) - Yellow/Green indicating diagnostic status and FDDI PHY state. On the DAS adapter it also indicates "A" port backup status when connected "dual-homed".
- On-board FLASH ROM (256 Kbytes) holds the adapter's functional code and diagnostics, and can be updated in the field using a host CPU load utility.
- DAS options support "Dual-Homing" for use in high availability configurations.
- Auto-Configuration to Operate in FDDI Full Duplex Technology (FFDT) mode when connected point-to-point with a cooperating FFDT adapter, or FDDI Switch (Digital's GIGAswitch/FDDI for example). This allows aggregate data rates in excess of 100 Megabits/Sec. (BOTE: Auto-configuration must be turned on by the host CPU driver.)

PCI I/O Bus Standards	PCI 2.2 and 2.1		
ANSI FDDI Standard Compliance	X3.229-1994 SMT V7.3 ANSI X3.166-1990 FDDI PMD ANSI X3.148-1988 FDDI PHY ANSI X3.139-1987 MAC ANSI X3.237 TP-PMD Interoperable Draft Standard V2.0		
Safety	UL 1950, CSA C22.2 No. 950, EN60950, IEC 60950		
Radiated Emissions	FCC PART 15 Class B, CSA C108.8 Class B, EN55022 Class B, VCCI V-3 Class B, EN50082-1 AS/NZS 3548 and 89/336/EEC		
Power and Environmental Specifications	**Operating**	Temperature	14° to 104° F (-10° to 40°C)
		Humidity	8% to 80% (non-condensing)
	Non-operating	Temperature	-40° to 185° F (-40° to 85°C)
		Humidity	0% to 95% (non-condensing)

Technical Specifications

Option	Slots	Size	+5 Vdc Amps	+12 Vdc Amps	Total Watts	Weight [4]
-AC	1	Short[1]	1.1	0.001[3]	5.02	0.28 lb (0.127 kg)
-DC	1	Short[1]	1.5[2]	0.001[3]	7.52	0.32 lb (0.145 kg)
-UC	1	Short[1]	1.1	0.001[3]	5.02	0.26 lb (0.118 kg)
-MC	1	Short[1]	1.4	0.001[3]	7.02	0.30 lb (0.136 kg)

NOTES:

1. Module Height = 4.20 inches from bottom of bus connector to top of module, Depth = 6.95 inches from front of bracket to back edge of module.
2. When an external OBR is used, this value will be increased by that required to drive the OBR (+500 Milliamps Max) 0.060 Amps required during FLASH programming, and diagnostic error logging.
3. Approximate unpackaged weight - adapter only.

AlphaServer Supported Options Lists on the Web http://h18002.www1.hp.com/alphaserver/