

ATM Aggregation — OC-3c, DS3, and T1 IMA

Total Access® HDX OC-3c ATM Aggregation System

The ADTRAN Total Access HDX ATM Aggregation system is a high-density, flexible multiservice access platform that allows aggregation of ATM OC-3c, ATM DS3, and T1 IMA into a single ATM OC-3c or DS3 network interface. The key to this system is the OC-3c Primary Switch Module (PSM) which provides: the OC-3c or DS3 interface to the network; all the switching fabric; the Metallic Data Extension (MDE) Links; and access to all shelves for management.

The Primary Controller Unit (PCU) provides management access to the system, controls alarming, disaster recovery, and maintains records of provisioning for all the cards in the system. The Expansion Controller Unit (ECU) occupies secondary shelves and provides access to the management control plane of the system through the Expansion Switch Module (ESM). The ESM also occupies the secondary shelves and provides MDE Link access to the shelf in which it resides, as well as an MDE Link port to feed the next shelf in the chain. Together, these four modules create the High Density eXpansion (HDX) architecture which provides a cost-effective solution for aggregation of ATM services.

The OC-3c Primary Switch Module installs into a single MUX slot in the primary Total Access 3000/3010 chassis and interfaces to the network via an Optical Adapter Module that installs on the backplane of the Total Access 3000/3010 chassis. The Optical Adapter Module is mounted to the backplane with two screws and provides OC-3 access through two LC connectors, one for transmit and one for receive. The PSM also provides a single MDE Link port which provides the data and management connection to the ESM in the next chassis of the chain. Standard traffic types such as UBR, nrt-VBR, rt-VBR, and CBR are supported by the system to manage and

prioritize all types of data and services through the system and into the network. The PSM employs traffic prioritizing and policing on a per VC (Virtual Circuit) or per VP (Virtual Path) basis to ensure proper delivery of customer data. Efficient data delivery is maximized through early packet discard and partial packet discard. Substantial buffers are also utilized to optimize data throughput. The Total Access OC-3c PSM supports both local and remote management.

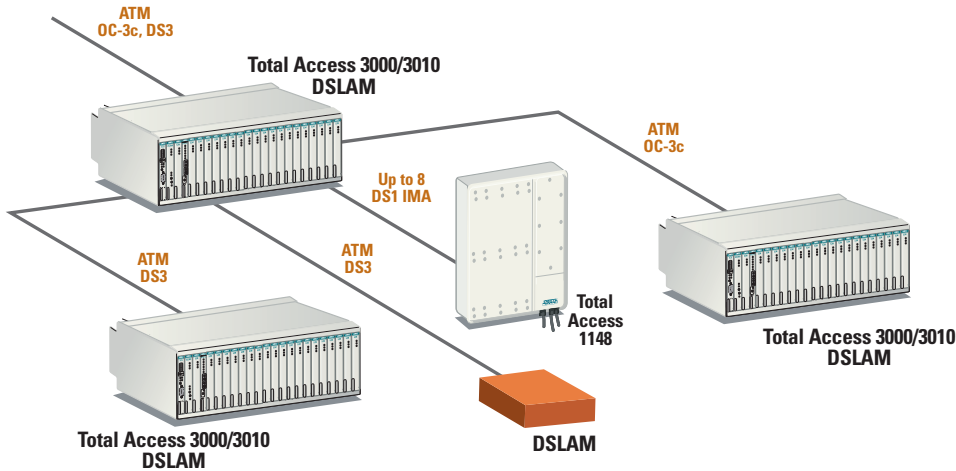
The Expansion Switch Module installs into all secondary shelves in the Total Access HDX Aggregation System and terminates the MDE Link from the previous chassis. The ESM provides a data path to the access modules installed in the respective shelf as well as a management path to the ECU to allow the PCU access to provision and monitor all functions of that chassis. The ESM also provides an MDE Link connection to the next Total Access 3000/3010 chassis in the chain.

The Primary Controller Unit (PCU) installs into the SCU slot of the Primary Total Access 3000/3010 chassis and provides management access to the system. The PCU provides remote management via an Ethernet interface on the backplane of the chassis or through the inband management PVC of the OC-3c PSM. Menus over Telnet, SNMP access for Total Access Element Management System (EMS) and TLI are supported over these interfaces. The PCU also provides RS-232 access through a DB-9 on the front panel of the PCU and through DB-25 connections on the Total Access 3000/3010 backplane. The PCU also enables audible and visual alarm contacts on the backplane to provide alarm notification to localized monitoring equipment. The PCU is responsible for Operation, Administration, Maintenance, and Provisioning (OAM&P) tasks, as well as System Configuration

Solution Features

- Provides choice of ATM interfaces depending on chosen network module
- Supports ATM OC-3c, ATM DS3, DS1 IMA, and many other access modules
- Screen provisioning and trouble-shooting via menus through the PCU
- Supports remote system management via the PCU for menus, SNMP, or Total Access EMS
- Supports in-band management PVC
- Provides alarm status via SNMP and menus
- Craft serial interface port (front panel and rear chassis) for user access
- Software can be upgraded while in field without affecting service
- Auto provisioning/copy provisioning of access modules
- System Configuration Archive (SCA)
- Security account management
- Terminal server port
- Auto-upgrade feature for entire system firmware
- Accepts new software downloads via YModem or TFTP

Total Access® HDX OC-3c ATM Aggregation System



Archival (SCA) and Auto-Upgrade. Auto upgrade is a feature that allows the Total Access system, with access to a TFTP server, to automatically keep firmware up-to-date on all systems across the network, including cards that are installed right out of the box. Auto-Upgrade also makes upgrading the entire network to a new system release an easy process. Other features of the PCU include a front panel ACO pushbutton, terminal server ports and RS-485 chaining for communication with other Total Access devices.

The Expansion Controller Unit installs into all secondary shelves in the Total Access HDX Aggregation System. The ECU provides access to the management path for each of the modules in the chassis in which it is installed. With the ECU installed beside an ESM and connected to the PCU across the MDE Link, the PCU has complete management control of the chassis.

The following modules may be installed into the ADTRAN Total Access HDX ATM Aggregation system: OC-3c Line Module, DS3 Line Module, and Octal T1 IMA Access Module. The OC-3 Line Module is a singlewide line module that provides an industry standard ATM OC-3c with a 64 Mbps downstream and 32 Mbps upstream data connection to the subtended device. The DS3 Line Module is a dual wide line module that provides an industry standard, full-rate ATM DS3 to a subtended device. The Octal T1 IMA Access Module is an 8-port module that provides up to four IMA groups to subtended devices or up to a single 8-port IMA group to a single subtended device.

Ordering Information

Equipment	Part #
23" Chassis	1181001L1
19" Chassis	1182003L1
SCU	1181018L3
OC-3c Primary Switch Module	1181044L3
OC-3c Optical Adaptor Module	1181009L1
OC-3c Dual Optical Adaptor Module	1181009L2
DS3 ATM Line Module	1181450L2
OC-3c ATM Line Module	1181454L1
OCTAL DS1 IMA Access Module	1181409L12
QUAD DS1 IMA Access Module	1181409L14
23" Fan Module	1181006L1
23" Heat Baffles	1181003L2
19" Fan Module	1182006L1
19" Heat Baffles	1182005L2

Note: The Total Access 3000 is designed for 23-in. (58.42 cm) relay racks and has 28 slots. The equipment meets all requirements of NEBS Level 3, UL 1950, CE, and other applicable standards for maximum reliability and safety.

Solution Features (cont.)

- Local ATM switching capability
- Supports UBR, rtVBR, nrtVBR, and CBR service types
- Provides UNI 4.0 and 3.1 interface compatibility
- Supports PNNI version 1.0
- Provides an ATM network interface capable of supporting 1,344 ports
- Provides a maximum of 16000 Permanent Virtual Circuits (PVCs) in multi-shelf mode with a limit of 4,096 PVCs per shelf
- Provides a maximum of 4,095 Permanent Virtual Paths (PVPs)
- Provides performance history
- Provides system timing reference from external BITS clock, OC-3 received timing, access module received timing, or a local oscillator
- Suitable for Remote Terminal and Central Office applications



For More Information

www.adtran.com

ADTRAN, Inc.
901 Explorer Blvd.
Huntsville, AL 35806

General Information
800 9ADTRAN
info@adtran.com

Applications Engineering (Pre-Sale)
800 615-1176



ADTRAN is an ISO 9001, ISO 14001, and a TL 9000 certified supplier.

CN014A October 2006
Copyright © 2006 ADTRAN, Inc.
All rights reserved.

Specifications subject to change without notice. ADTRAN and Total Access are registered trademarks of ADTRAN, Inc. All other registered trademarks and trademarks mentioned in this publication are the property of their respective owners.