



## A-1240

### 24 T1/E1 Access Aggregation Switch for ATM, Frame Relay, TDM and VLAN traffic

The MultiStream™ A-1240 aggregates and switches multi-protocol traffic from 24 DS-1/E1 ports and an optional DS-3/E3 port or OC-3c/STM-1 port. Protocol options that can be supported include ATM, inverse multiplexing over ATM (IMA), frame relay, multilink frame relay (MFR), channelized DS-1/E1 frame relay, circuit emulation service (CES), as well as bridged Ethernet/VLAN traffic from the 10/100Base T port. The A-1240 can operate either stand-alone in a single-slot chassis or as an access card in the 18-slot A-4000

ASC's MultiStream™ A-1240 provides flexible, upgradeable bandwidth from fractional T1/E1 to NxT1/E1 levels with IMA and MFR inverse multiplexing. With strong quality of service (QoS) capabilities, the A-1240 enables service providers to offer and meet customer service level agreements (SLAs).

The NEBS-3 certified A-1240 offers remote provisioning of multiple protocols for any port. ASC provides multiple choices for local and centralized management, including a Web-based element manager, CLI, and SNMP agent.

#### A-1240 Network Interfaces

##### 24 DSX-1 Ports

- Connector: 100-pin female SCSI, rear panel
- Pigtail cable (SCSI to dual 50 pin telco female) included
- ATM speed: clear channel at full T1
- FR speed: full/fractional (Nx64) T1
- Frame formats: ESF
- Line code: B8ZS
- Optional channelization of DS-1 ports to DS-0 level for frame relay and TDM (CES) termination (enables multiple end-users per DS-1, up to 288 frame relay users and 576 TDM users)

##### 1 DS-3 port option for single-slot chassis

- Connector: dual BNC, 75 ohm rear panel
- Frame formats: C-bit or M23
- Line code: B3ZS
- Speed: clear channel at full DS-3
- Port mapping: ADM or PLCP

##### 1 OC-3c port option for single-slot chassis

- Connector: dual SC duplex female, front panel
- Single-mode or multi-mode order option
- Frame format: 1.432/G.707 SDH STM-1

#### A-1240E Network Interfaces

##### 24 E1 Ports

- Connector: 100-pin female SCSI, rear panel
- Pigtail cable (SCSI to dual 50 pin telco female) included
- ATM speed: clear channel at full E1
- FR speed: full/fractional (Nx64) E1
- Frame formats per ITU-T-G.704:
  - E1-CRC CAS enabled/disabled
  - E1-CAS enabled/disabled
- Line code: HDB3 or AMI
- Optional channelization of E1 ports to E0 level for frame relay and TDM (CES) termination (enables multiple end-users per DS-1, up to 288 frame relay users per E1)

##### 1 E3 port option for single-slot chassis

- Connector: dual BNC, 75 ohm rear panel
- Speed: Clear channel
  - ITU-T-G.832 ADM mapping
  - ITU-T-G.751 ADM mapping
  - ITU-T-G.751 PLCP mapping
- Line code: HDB3

##### 1 STM-1 port option for single-slot chassis

- Connector: dual SC duplex female, front panel
- Single-mode or multi-mode order option
- Frame format: 1.432/G.707 SDH STM-1



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A-1240



## Product Features

### Ethernet/VLAN (optional on single-slot models)

- IEEE 802.1Q virtual bridged local area network
- VLAN-to-ATM PVC mapping
- IETF 1483 bridged PDU support
- Access via 10/100 Base T Ethernet

### Protocol Support

- **ATM**
- ATM UNI 3.0 3.1 4.0
- Virtual UNI on network-side port
- ILMI
- Connections: VPCC, PVCC, PVPC
- Class of service categories:
  - CBR, nrtVBR, rtVBR, and UBR per VC queuing
  - 15 user-assignable priorities including one default priority
- Informational CAC
- Traffic policing: single and dual leaky bucket options, configurable per-VC upstream and downstream
- Congestion control: AAL5 auto detect with EPD procedures
- Cell payload scrambling options

#### IMA (optional)

- ATM Forum inverse multiplexing over ATM (IMA) 1.0, 1.1
- UP to 12 groups, up to eight circuits per group

#### Frame Relay (optional)

- UNI (FRF 1.1 and FRF .4)
  - NNI (FRF 2.1 and FRF .10)
  - LMI/annex A, annex D, gang of four
  - COR policing, FECN/BECN
  - Per VC queuing
- 15 assignable priorities including one default priority

#### Multilink Frame Relay (optional)

- Frame Relay Forum FRF.16 multilink frame relay
- Up to 12 groups, up to eight circuits per group

- **ATM-to-Frame Relay Interworking (optional)**
- Network interworking FRF.5
- Service interworking FRF. 8.1-transport mode and translation mode
- ILMI/LMI interworking
- EFCI-to-FECN/BECN mapping
- CLP-to-DE mapping

#### Circuit Emulation Service (CES) (optional)

- T1/E1 TDM connections converted to CES virtual connections
- Non-structured CES for clear channel T1/E1
- Structured CES for Nx64 fractional T1/E1
- Channel associated signaling (CAS)
- AF-vtoa-0078.000
- AF-vtoa-0085.000
- ITU-T Rec 1.363 B-ISDN ADM adaptation layer (AAL) specification
- Up to 24 PVCs per T1 port (576 PVCs total)

#### Switching (optional on single slot model)

- Any port to any port mapping for PVCs
- IMA and MFR groups supported

### Management and User Interface

- HTTP manager for standard web-browser access
- Full SNMP v1 agent includes traps for dynamic alarming
- Full suite of standard and enterprise MIBs for SNMP management
- ASCII configuration file upload/download via FTP over 10/100 Base T Ethernet port on in-band
- CLI manager via telnet over 10/100 Base T Ethernet, craft port (front panel DB-9 female connector) or in-band
- Configurable maximum transfer unit (MTU) size
- Extensive physical layer and network protocol statistics
- Detailed status per port and per connection
- Field upgradeable FLASH file system holds dual code loads and download by FTP
- Radius or TACACS+ admin authentication

### Timing Sources

- Internal timing: free-running stratum level 3
- External timing: BITS A and B primary reference source via wire wrap pins
- Line timing: from any T1/E1 or T3/E3 interface
- User-definable timing hierarchy

### Alarms, Visual Diagnostics

- Event and alarm log with time stamps in NVRAM
- Critical, major, minor alarm contact closures with front panel LEDs and alarm cut-off
- Front panel LEDs for power, timing, fan fail, and each T1/E1 and T3/E3 port
- Line status LED for each T1/E1
- Alarms: RDI, LOS, LOF, OOF, AIS
- Optional Smarjack and FDL loop codes for DS-1 ports
- Optional BERT line testing for DS-1/E1 or DS-3/E3 ports, manual or time automated testing

### Certifications

- Safety: UL 1950, EN0950/IEC950, CSA 22.2 950
- Emissions: EN 55022/CISPR 22, FCC Part 15 class A
- Immunity: EN 61000
- NEBS Level 3: GR-1089, GR-63
- CE approved
- RBOC collocation certified: Verizon, Bell South, SBC

### Physical

- Size: 1.75" (1U) H x 19" W X 18" D
- Rack mountable, center or flush mount
- Operating temp: 0° to 40°C, short term -5° to 50° C
- Temperature storage: -40° to 70°C
- Humidity: 5% to 80% (relative, non, condensing)
- Weight: 9 lbs
- Dual voltage input feeds: -48 VDC @ 1.7A
- Optional external AC power supply
- Typical DC power: under 50 Watts, 168 BTU
- Max DC power: 85 Watts, 286 BTU
- Cooling: field serviceable air filter and fan tray with redundant fans

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