

## 24 T1/E1 Access Platform for ATM, Frame Relay, TDM and VLAN Traffic

The ASC product family is the broadband services access platform for service providers' points of presence (PoPs). ASC dramatically lowers the cost of delivering broadband services, including capital equipment, provisioning, rack space, trunks, and upstream switch costs.

A-1240 aggregates ATM, inverse multiplexing over ATM (IMA), frame relay, multi-link frame relay (MFR), and TDM traffic from 24 T1/E1 circuits, as well as Ethernet/VLAN traffic and an optional DS-3 connection. It's ideal for delivering a full range of broadband services in addition to TDM-based voice and legacy data services over packet networks. Inherently scalable, A-1240 operates either stand-alone in its single-slot chassis, or as an access card in the 18-slot A-4000.

**MultiStream Technology** ASC's groundbreaking MultiStream technology offers maximum flexibility to provide just the right access bandwidth — from fractional T1/E1 to NxT1/E1 levels — through any port and with any protocol. MultiStream software adds incremental bandwidth capacity remotely, without interrupting service.

- **NxT1/E1 Options** Supports bundling of T1s/E1s with IMA and MFR to fill the cost and bandwidth gap between T1/E1 and T3/E3. Up to 12 bundles supported.
- **Software Configurable Ports** All ports are individually and remotely software configurable for ATM, IMA, frame relay, or MFR.
- **ATM-Frame Relay Interworking** Converts traffic between protocols using FRF.5 and FRF.8.

**Multiple Trunk Options** The network-side port can be any T1/E1, an IMA or MFR group, or the optional T3/E3.

**Virtual LAN (VLAN) Support** An Ethernet port supports multiple virtual LANs, mapping each to a separate virtual circuit with QoS. This allows IP and other LAN-based traffic to access a WAN infrastructure.

**Virtual Path Cross Connect** Establishes blocks of connections to eliminate repetitive provisioning tasks.

**Quality of Service (QoS) Support** Advanced traffic engineering supports multiple service classes to enable value-added service level agreements and integrated services.

**Compact** 24 T1/E1 ports, 1 Ethernet, optional T3/E3 port in single rack unit (1 RU) chassis.

**Management Support** Includes Web-based element manager, full SNMP agent, CLI, and configuration-file downloads.

**Carrier Class** A-1240 is NEBS-3 certified, and has internal stratum level 3 timing.

**Legacy TDM Support** A-1240 supports time division multiplexing (TDM) traffic with circuit emulation services (CES). ASC modules support structured and non-structured CES for fractional and full T1/E1 TDM traffic.

### Benefits

**Affordable PoPs** ASC offers low entry cost and “pay as you grow” scalability. Innovative packaging, with industry-leading density, minimizes space costs.

**Remote Provisioning** Improve customer responsiveness. By choosing protocols and configuring ports remotely, you speed provisioning and eliminate costly onsite visits.

**Reduce Trunk Facilities Costs** By aggregating with multiple network trunk options, you can “rightsize” trunks to exploit statistical gain and eliminate wasted bandwidth.

**Reduce Switch Costs** By aggregating and adapting lower-speed lines to a high speed, single protocol network trunk, you avoid wasting expensive core switch capacity.

**Adapt to the Future** ASC flexible software protocol engine prepares your network to adapt to additional protocols and new functions with software upgrades.



# A-1240 Specifications

## A-1240 Network Interfaces

### 24 DSX-1 Ports

- Connector: 100-pin female SCSI, rear panel
- Pigtail cable included: SCSI to dual 50 pin amphenol female
- ATM speed: clear channel at full T1
- FR speed: full/fractional (Nx64) T1
- Frame formats: SF (D4) or ESF
- Line code: B8ZS or AMI

### I DS-3 Port option for single-slot chassis

- Connector: dual BNC, 75W, rear panel
- Frame formats: C-bit or M23
- Line code: B3ZS

## 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
  - E1-CRC CAS disabled
  - E1-CAS disabled
  - E1-CAS enabled
- Line code: HDB3 or AMI

### I E3 Port option for single-slot chassis

- Connector: dual BNC 75Ω rear panel
- Speed: clear channel at full E3
- Frame formats:
  - ITU-T G.832 ADM mapping
  - ITU-T G.751 ADM mapping
  - ITU-T G.751 PLCP mapping
- Line code: HDB3

## Ethernet/VLAN (Orderable Option) (both models)

- IEEE 802.1Q virtual bridged local area network
- VLAN-to-PVC mapping
- Access via 10/100BaseT 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
  - 14 assignable priorities plus two default priorities
- Informational CAC
- Traffic policing: single and dual leaky bucket
- Congestion control: AAL5 autodetect with EPD and PPD procedures
- Cell payload scrambling options
- F4 and F5 OAM Support

### IMA (Orderable Option)

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

### Frame relay (Orderable Option)

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

### Multilink frame relay (MFR)

- Frame relay forum multilink frame relay (MFR) FRF.16

### ATM-to-frame relay interworking

- Network interworking FRF.5
- Service interworking FRF.8 — transparent mode & translation mode
- ILMI/LMI interworking
- EFCI-to-FECN/BECN mapping
- CLP-to-DE mapping

### TDM (Circuit Emulation) (Orderable Option)

- Non-structured CES for clear channel T1/E1
- Structured CES for Nx64 fractional T1/E1
- Channel associated signaling (CAS)
- Point to multi-point support
- AF-vtoa-0078.000
- AF-vtoa-0085.000
- ITU-T Rec I.363 B-ISDN ADM adaptation layer (AAL) specification

## Management & User Interface

- HTTP manager for standard Web-browser access
- Full SNMP v1 agent includes traps for dynamic alarming
- ASCII configuration file upload/download via FTP over 10BaseT Ethernet port or in-band
- CLI manager via telnet over 10/100BaseT Ethernet or craft port (front panel DB-9 female connector) or in-band
- Extensive physical layer and network protocol statistics
- Detailed status per port and per connection
- Field-upgradeable FLASH file system holds dual code loads and configurations; upload and download by FTP

## 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 timestamps in NVRAM
- Physical port and VC statistics collection in NVRAM

- Critical, major and minor alarm contact closures with front panel LEDs and alarm cut off
- Front panel LEDs for power, timing, fan fail, each T1/E1 and T3/E3 port.
- Line status LED for each T1/E1
- Alarms: RDI, LOS, LOF, OOF, AIS
- BERT line testing on any access or network port

## Certifications

- Safety: UL 1950, EN 60950/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

## Environmental

- Size: 1.75" (1U) H x 19"W x 18"D
- Rackmountable, 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

## Ordering Information

- Base System:
  - Available in T1 and E1 versions
  - 24 T1 or E1 ports, ATM support
  - Pigtail cable, SCSI to dual 50 pin telco female
  - Rackmountable chassis
- Orderable options:
  - T3 or E3 port
  - Frame relay support
  - MFR software
  - IMA software
  - ATM-to-frame relay interworking
  - Ethernet VLAN support
  - CES support
  - External AC power supply

## Contact Info

Advanced Switching Communications  
8330 Boone Blvd., 5th Floor  
Vienna VA 22182  
Tel (703) 448-5540  
Fax (703) 448-5590  
www.asc.com

