Centillion 100 Switching System

Data Comm Hot Products

1993 WINNER

Delivers Multi-LAN and ATM Switching on a Single Platform

Provides Maximum Investment Protection

Offers a Cost-Effective, High-Performance Desktop or Backbone Switching Solution

The Centillion 100™ from Bay Networks is a cost-effective switching system that meets the needs of today's and tomorrow's networks. Designed to provide simultaneous LAN-to-LAN, LAN-to-ATM and ATM-to-ATM switching, the Centillion 100 maximizes the life of installed LANs while providing a practical, flexible migration to ATM.

Multigigabits of switching capacity in the Centillion 100 boosts the performance of LAN backbones, increases bandwidth to servers and power desktops, and improves network response times for mission-critical applications. The switch's modular design allows network connections and bandwidth capacity to be easily and cost-effectively added. The Centillion 100 chassis holds up to six switch modules, each equipped with an autonomous LAN or ATM switching engine, enabling the switch to scale its aggregate capacity from 3.2 gigabits per second (Gbps) to 10 Gbps.

The Centillion 100 switch modules, which feature different types of LAN and ATM media interfaces, can be mixed and matched to create a unique ATM-core LAN switch. An integral 3.2 Gbps ATM-core fabric interconnects modules within the Centillion 100, minimizing latency while providing an ATM-ready switching solution.

The Centillion 100 supports industry-standard Ethernet and Token Ring, and is compliant with ATM Forum specifications, enabling the switch to operate in any standards-based networking environment. Combined with Bay Networks Ethernet, Token Ring and ATM hubs, switches and router interfaces, the Centillion 100 contributes to the industry's most complete product family for mixed switched and shared-media environments.

Bay Networks

Benefits

Delivers Multi-LAN and ATM Switching on a Single Platform

The Centillion 100 integrates multi-LAN and ATM switching on a single platform. It eliminates bottlenecks and improves performance in pure Ethernet, pure Token Ring, and mixed Ethernet/Token Ring environments. ATM interfaces can be added to Centillion 100 switches when and where ATM is needed to increase bandwidth for the backbone, high-performance desktops, or servers. The switch's modular design offers total flexibility while reducing overall equipment costs.

Provides Maximum Investment Protection

The Centillion 100's internal ATM fabric transparently leverages the power of ATM for LAN switching. Centillion 100s can be directly interconnected with ATM links without added complexity. When necessary, ATM ports can be added to provide dedicated bandwidth to select servers and desktops. As ATM becomes the connectivity solution of choice, the Centillion 100 can serve as a pure ATM switch via simple module changes. No forklift backplane upgrades or additional ATM devices are required.

Offers a Cost-Effective, High-Performance Desktop or Backbone Switching Solution

Optimized for ATM backbone connectivity, the Centillion 100's built-in switch modules ensure scalable bandwidth and low, consistent end-to-end latency. A Centillion 100 network sustains its performance as the network grows. Backbone capacity can be easily added at a low incremental cost. When interconnected via one or more 155 Mbps ATM ports into a GIGArray™, the ATM links act as an extension of the Centillion backplane, offering maximum scalability based on bandwidth and port density needs.

Features

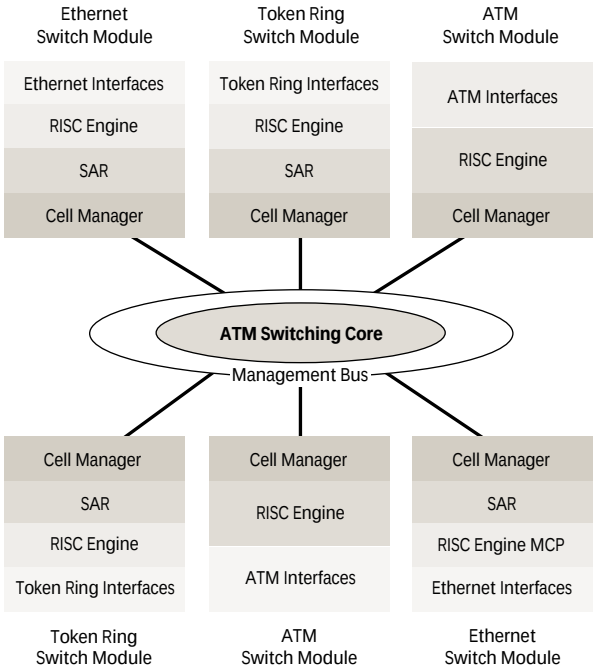
Centillion 100 Description

10 Gbps of Scalable Switching Capacity Offers Sustained Performance The Centillion 100's Cellerator™ technology is a highly-distributed, parallel and scalable switching intelligence distributed between a 3.2 Gbps ATM core fabric and switch modules, each of which offers up to 1.2 Gbps of non-blocking local switching capacity. When traffic flows from one port to another within a module, it is forwarded locally in native mode by a 100 MIPS RISC engine. The ATM core bandwidth is reserved for cross-module traffic only.

Each LAN switch module also has a 400 Mbps full-duplex ATM segmentation and reassembly (SAR) chip that converts cross-module packets into cell streams for transport over the ATM core fabric. A 400 Mbps management bus provides a separate highway for intermodule control, including signaling, network management and topology exchanges. This parallel path prevents contention between data and control traffic. The high-speed management bus minimizes signaling latency, assuring sustainable performance at maximum load.

A Master Control Processor (MCP) handles functions such as network management and route control on a switch-wide basis. Integrated into one of the switch modules, the MCP does not consume a switch slot in the chassis, providing maximum price/performance value.

Figure 1 | **Parallel LAN and ATM Switching with the Centillion CellSpeed Architecture**



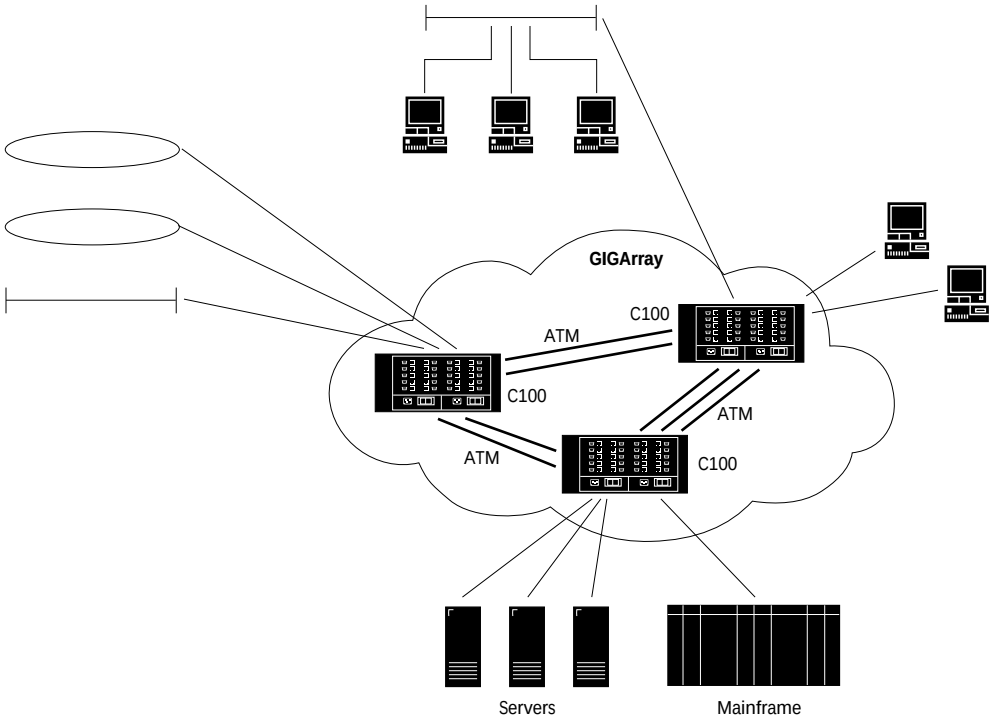
Scalable Backbone and Port Density

Centillion 100 switches can load-balance over parallel ATM links to create a multi-gigabit backbone that is free of bottlenecks. As a result, performance increases can be accomplished by simply adding ATM links in the backbone. Network managers no longer need to constantly adjust the network design to obtain incremental performance improvements.

This ability, called the GIGArray, offers unprecedented performance and scalability in a backbone network. In addition to improving performance, redundant ATM links also increase network reliability by automatically rerouting traffic in the event of a link failure.

Up to 16 Centillion 100s can be configured in a GIGArray for an aggregate throughput of 10 million packets per second (pps). Additionally, multiple GIGArrays can be bridged within Centillion 100s to build large-scale ATM backbone networks.

Figure 2 | **GIGArray: Scalable Bandwidth and Port Density**



Sophisticated Network Control

The Centillion 100 provides extensive capabilities for custom topology and traffic control, including:

- Selectable bridging modes and Spanning Tree protocols; transparent, source-route, source-route transparent and Transparent Source Route Forwarding (TSRF) bridging; IEEE 802.1d and IBM Spanning Tree.
- Powerful custom filters provide the ability to define and apply 128 filters per port, and filter any fields within the first 255 bytes of a frame.
- Filtered traffic can be forwarded, discarded, redirected to other LAN ports, or copied to one or more monitor ports.
- Predefined filters and proxies for source route explorers and NetBIOS name queries minimize broadcast traffic and provide access control.
- Port-level virtual LAN partitioning restricts broadcasts, reduces network hops, and eases network address or Token Ring number administration.
- Traffic mirroring based on filtered conditions simplifies network diagnostics. Familiar LAN analyzer or RMON tools can be used to monitor switched traffic.

Mission Critical Fault Tolerance

The Centillion 100 offers an optional load sharing power supply. All Centillion 100 switch modules, including the power supplies, are hot swappable. In the event of a switch module failure, only the users connected to the failed module are affected; other modules continue to service the rest of the network while the failed module is replaced. Network configuration can be loaded from flash memory or over the network for rapid service recovery. In addition, a terminal/modem port is provided for out-of-band access to the Centillion 100.

Easy Installation and Upgrade

The Centillion 100 is fully compatible with installed Ethernet, Token Ring and ATM environments, and can be added to existing networks with minimum disruption. Preconfigured for plug-and-play operation, the Centillion 100 automatically learns and switches traffic without requiring manual configuration. Updating software is equally simple; software can be downloaded over the network or from the RS-232 port to a centralized management station.

Technical Specifications

Technical specifications for the Centillion 100 Switching System appear in Table 1.

Table 1 **Centillion 100 Switching System Technical Specifications**

System Hardware	Aggregate Capacity: 10 Gbps Redundant Power: Optional Management Access: SpeedView for Windows In-band Token Ring, Out-of-band Serial SpeedView for UNIX In-band Token Ring and Ethernet Hot Swappable: Yes Serial Interface: Mini-DIN-8 Performance forwarding rate: 400,000 pps with 64 byte packets for Token Ring 1,000,000 pps with 64 byte packets for Ethernet
Network Management	SNMP Agent 802.2 LLC
Compliance	CCITT 1.361 ATM Layer Specification ATM Forum UNI V3.0 and 3.1
Environmental	Operating Temperature: 0C-40C Operating Humidity: 0-95% non-condensing
Physical Dimensions	Tabletop: (H) 8.75 in x (W) 17.25 in x (D) 14 in [(H) 2.2 cm x (W) 43.8 cm x (D) 35.6 cm] Rack Mount: (H) 8.75 in x (W)17.25 in x (D) 16 in [(H) 2.2 cm x (W) 43.8 cm x (D) 40.6 cm]
Mounting Options	19 in. universal EIA (telco) rack Table Mountable
Power Requirements	90-240VAC@47-63Hz 5/2.5 Amps

Ordering Information

Ordering information for the Centillion 100 Switching System appears in Table 2.

Table 2 **Centillion 100 Switching System Ordering Information**

Order Number	Description
AS0002001	Centillion 100 Switching System

For more sales and product information, please call **1-800-8-BAYNET**.

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