

WAC-188-A

ATM Switch Element

DESCRIPTION

The ATM Switch Element (WAC-188-A) is an advanced communications device capable of producing low cost, sophisticated ATM systems. Each WAC-188-A has 1.2 Gbps throughput and can be joined with other WAC-188-A's in large switch fabrics to create very high bandwidth switching systems. The multipriority queuing supported by the WAC-188-A allows real-time, delay-sensitive data to be multiplexed effectively with general LAN traffic. IgT also offers the ATM Switch Element Driver (WAC-188-DRV) for the WAC-188-A device.

FEATURES

General

- Provides nibble-wide, 50 MHz inputs and outputs.
- Provides non-blocking capabilities.
- Supports the following configurations:
 - An 8 x 8 155 Mbps OC-3c/OC-12c switch configuration (see Figure 1).
 - A 2 x 2 622 Mbps OC-12c switch configuration (see Figure 1).
 - Any of 14 different hybrid switches, such as eight OC-3c inputs and two OC-12c outputs.

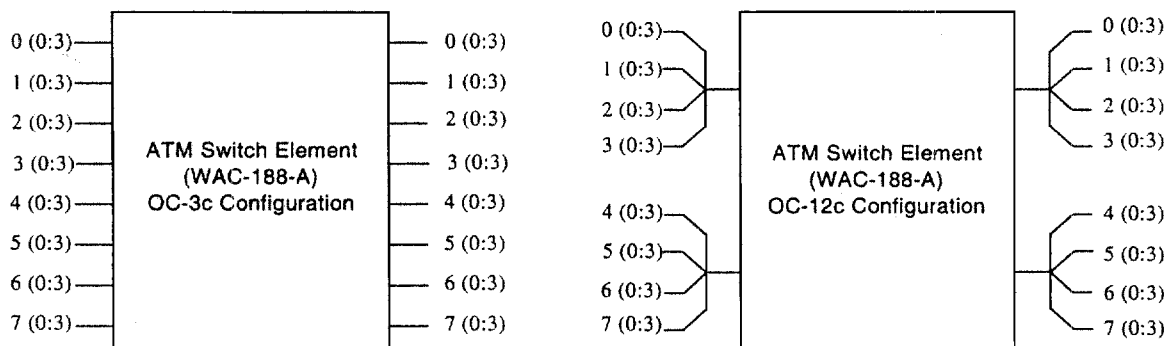


Figure 1. Basic ATM Switch Element (WAC-188-A) Configurations

Backpressure I/O

- Asserts per-priority backpressure on each input.
- Accepts per-priority backpressure on each output.

Pooled Multipriority Queuing

- Provides 32-cell memories in a common-pool central queuing discipline.
- Dynamically allocates cell memories through linked lists.
- Provides five priority queues.

Multicast Support

- Replicates multicast cells using an optimal tree-based structure.
- Provides 256 multicast groups.

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Available Bit Rate (ABR) Support

- Provides three proportional bandwidth queues to support different rates and qualities of service, and to enhance fairness.

Processor Interface

- Provides an 8-bit processor interface.

Testability

- Provides a marked cell counter for system-level monitoring and diagnosis.
- Provides outputs that are all tristatable.
- Provides boundary scan (JTAG) on most pins.

Fairness

To encourage fairness, backpressure due to congestion is based on the following two mechanisms:

- If a cell from an input does not leave the WAC-188-A and another cell from the same input arrives, backpressure is applied to that input only.
- If most of the WAC-188-A's buffers are being used, then the WAC-188-A applies backpressure in a round-robin manner to all inputs. Figure 2 shows a block diagram of the WAC-188-A. In the figure, thicker lines represent busses.

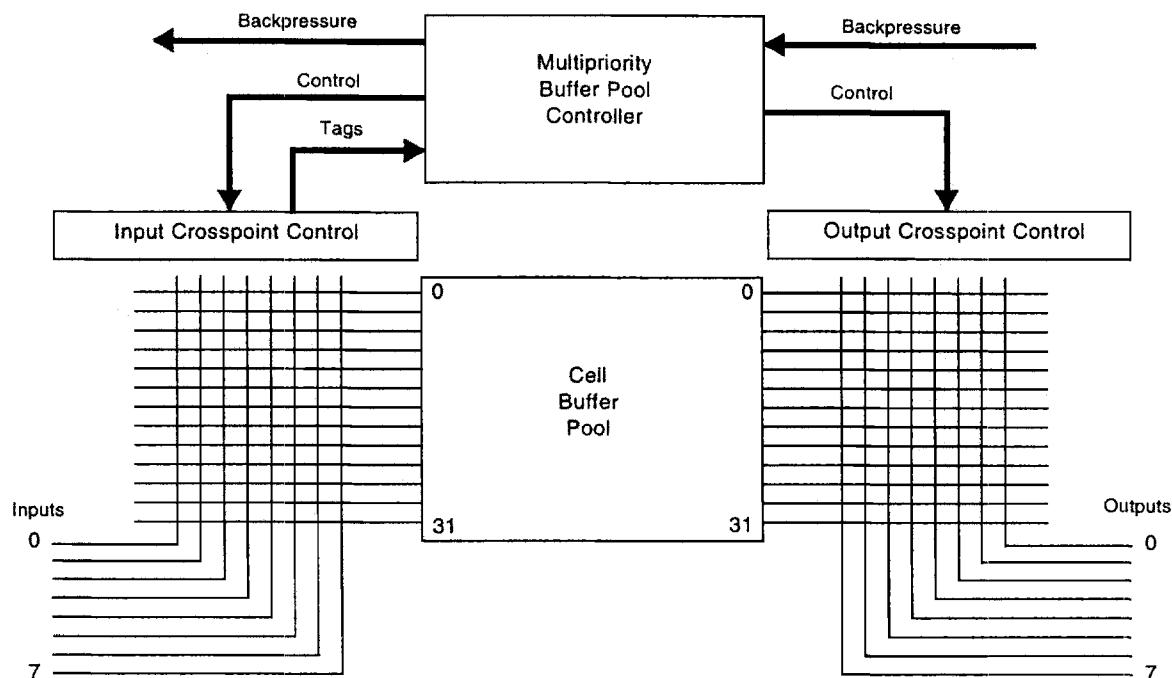


Figure 2. WAC-188-A Block Diagram

Physical Characteristics

- 5 V Supply voltage.
- Available in 160-pin Plastic Quad Flat Pack (PQFP) package with square/gullwing leads.
- Operating temperature range 0° to 70°C.
- Power consumption 300 mA typical, at 50 MHz.

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