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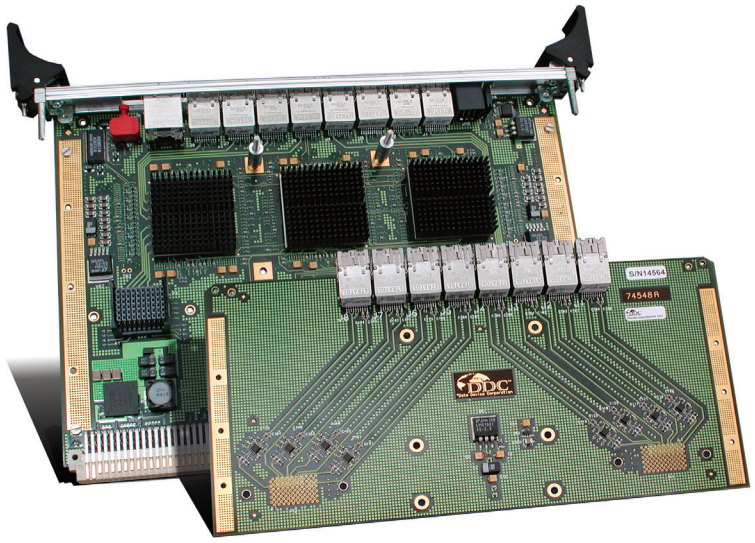
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FibreMATRIX™ Fibre Channel Switch

Product Brief

Models: FC-76000



The FC-76000 FibreMATRIX™ series are 16-port VME Fibre Channel fabric switches optimized to meet the high speed performance, reliability, and demanding environmental requirements of embedded, real time, military and aerospace applications.

Key Features

- 16-Optical Ports
- Conduction or Convection Cooled VME64x Form Factor
- -40°C to +71°C Temperature Range
- 1 Gb/s or 2 Gb/s Data Rate per Switch
- Ethernet and RS-232 Configuration Ports
- Support for Class 2 and 3 Service Including:
  - Broadcast
  - Multicast
  - Hunt Groups
- Supports Implicit or Explicit Fabric Login
- Supports Implicit Switch-to-Switch Expandability
- Supports 127 Priority Levels
- Maximum 2µS Port-to-Port Delay
- ELS Clock Sync Client and Server

Benefits

- Rugged Design for Harsh Environments
- Proven & Reliable Technology
- DDC-Developed Technology to Support Long Life Cycles
- Compatible with FibreACCESS™ and other Fibre Channel Cards
- Universal Port Design Provides Scalability to Higher Port Count Networks
- FPGA-based Architecture Allows Customization for Specific System Requirements:
  - Port Count
  - Media Interface
  - Form Factor

Applications

- Military Programs
- Aerospace Programs
- Sensor Interfaces
- High Speed Networking
- Storage Networks
- Test Labs
- Video Transfer

For more information: www.ddc-web.com/FC-76000

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Product Specifications

Features	Benefits
Number of Ports and Physical Layer	
16 (standard configuration), 32 (call for availability)	Provides flexibilty to meet varying system requirements
Signaling Rate (1Gb/s or 2Gb/s)	Interoperate with legacy or current HBAs and Fibre Channel Access Card
Optical Media Interface; Low Profile LC Transceivers	Low profile transceivers provide increased resistance to shock and vibration
Interoperability	
DDC FC-75000 FibreACCESS Network Access Card (NAC), QLogic, Lockheed Fibre Channel NIU, Harris NAC	Demonstrated interoperability provided by upper level protocol; supports broadcast/ multicast
Fibre Channel Classes of Service	
Class 2	Acknowledged, reliable operation
Class 3, Including Multicast and Broadcast	Reduced overhead, reliability provided by upper level protocol; supports broadcast/ multicast
Internal Architecture	
Crosspoint Architecture	Provides non-blocking fabric performance
1024-Entry Routing	Scalability to large networks
Port Capabilities	
F_Port	Connect to N_Ports (HBAs)
Switch-to-Switch Capability	Scalability to expand for larger networks
Frame Routing Capabilities	
Supports 127 Priority Levels	Enables multiple qualities of service by routing high priority frames ahead of other traffic. Includes fairness algorithm to prevent source port "starvation"
1K-Element Routing Table per Port	Supports combinations of unicast, multicast, and hunt group addressing
Route to Switch-to-Switch Links	Scalability to expand for larger networks
Broadcast	Route frames to all nodes on network
Multicast	Route frames to specified group of destination frames on a network
In-Order Delivery	Frames of a sequence are delivered in the same order that they arrived
Hunt Groups	Provides improved fabric performance by use of multiple inter-switch links
Fabric Intialization and Login	
Implicit Fabric Initialization	Provides deterministic and accelerated initialization of multi-switch networks for embedded avionics
Implicit Login	Minimizes time for network initialization
Explicit Login	Ensures interoperability with instrumentation and commercial switches
Configuration and Monitoring interfaces	
10/100 Base-T Ethernet Configuration Port ot RS-232	Enables use of an external PC for out-of-band configuration of routing tables and other features to support implicit login
Terminal emulator Interface (e.g., HyperTerminal)	All configuration and monitoring software is on-card for simplified use
Configuration Parameters and Capabilities • Select 1Gb/s or 2Gb/s • Values for R_A_TOV and E_D_TOV Timers • Domain_ID • Switch Port Numbers • FLOGI Parameters • Download and Read Routing Tables • Multicast Erver (implicit) • Program Values for R_T_TOV-100 mS or 100µS	Enables user to program fabric parameters for specific environments
Re-flash On-Card FPGAs	Enables firmware upgrades and maintenance
Self-Test Capabilities • Register Self-Test • Flash Test • Routing Table Checksum Test • Clock Sync Test • Internal (digital) Loop test • Run All Tesls	Enables user to initiate various (or all) self-tests following power turn-on or other times
Statistics • Frame Coutners (for each port). Number of: Transmit Frames, Frame Errors, LOS Counters • On-Card Temperature Monitoring	Supports network monitoring in system integration and embedded environments
Clock Synchronization and Additional Extend Link Services	
ELS Method (CSR and CSU Services)	64-bit resolution, provides for flexible time stamping
ELS Clock Sync Server Function	Provides common time base for systems on a network
ELS Clock Sync Client Function	Maintains time accuracy for souting clock sync update frames

Product Specifications (continued)

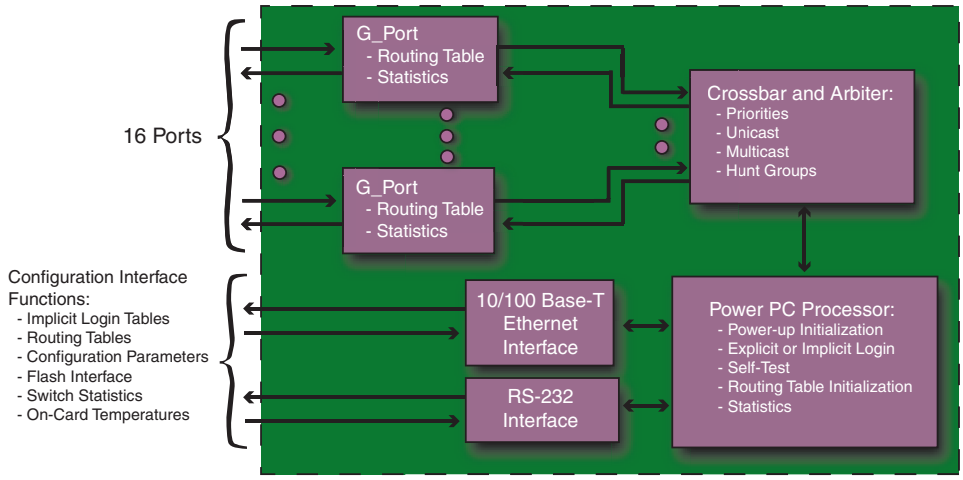
Features	Benefits
Clock Synchronization and Additional Extend Link Services (cont'd)	
FLOGI, PLOGI, LOGO	Enables interoperability with many variants of Fibre Channel in switches, N_Ports, and instrumentation
Frame Buffers	
8 Full Size Ingress Frame Buffers per Port	Multiple ingress buffers reduce network congestion and improve performance despite "bursty" traffic. two egress buffers support "ping-pomg" for increased throughput
2 Full Size Ingress Frame Buffers per Port	
Mechanical and Environmental	
Double Height (6U) VME64x Form Factor; 2-board construction for 16 ports. Contact DDC for other Form Factors.	Common form factor for avionics and vetronics use
Convection cooled option, 0°C to +70°C Temperature Range	Suited for laboratory use. Contact factory for extended temperature range version.
Conduction cooled card, -40°C to +71°C Temperature Range	Well suited for the environments of embedded avionics
Front Panel I/O with 'LC' connectors	Flexibility for use in lab or embedded applications

Technical Data

PARAMETER			MIN	TYP	MAX
ABSOLUTE MAXIMUM RATINGS					
Supply Voltage	+3.3	V	-0.3	–	3.6
	+5	V	-0.3	–	5.5
POWER SUPPLY REQUIREMENTS					
Voltages/Tolerance	+3.3	V	3.25	3.3	3.45
	+5	V	4.875	5.0	5.25
POWER DISSIPATION					
75% Bandwith Utilization		W	–	30	40
THERMAL					
Operating Temperature (measured at thermal range)	-C00 Range	°C	-40	–	+71
	-300 Range	°C	0	–	+55
Storage Temperature		°C	-55	–	+85
PHYSICAL CHARACTERISTICS					
Weight	(convection cooled)	oz		28.8	
		g		816	
Size		mm	160 x 233.35		
		in	6.299 x 9.181		

Note: For the complete product specification, please refer to the FC-7600 FibreMatrix® Fibre Channel Switch Hardware Manual (MN-76000XX-001), avaialble on the DDC website at www.ddc-web.com/FC-76000.

FibreMATRIX™ Block Diagram



Ordering Information

FC - 76261V2 - C00

Operating Temperature Range:
C00 = -40°C to +71°C
300 = 0°C to +55°C (note 1)

Number of Ports:
2 = 16

Form Factor:
V = VME

Speed and Media Options:
61 = 1 and 2 Gb/s, Optical Low Rider Transceivers

Cooling Method:
1 = Convection Cooled (note 1)
2 = Conduction Cooled

Base Product:
FC-76 = FibreMATRIX™ Fibre Channel Switch

Notes:
1. 300 (0°C to +55°C temperature range) is only available for convetion cooled card.
2. Please contact factory for availablity of -C00 temperature range convection cooled model.
3. These products contain tin-lead solder.

DATA DEVICE CORPORATION
REGISTERED TO ISO 9001:2008
REGISTERED TO AS9100:2004-01
FILE NO. A5976



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