A664 | Gigabit Ethernet Switch

Fiber Optic Rugged Managed GbE Switch

Aitech
Embedded Computing *without* Compromise

- 4x 1000Base-SR Fiber Optic Ports
- 12x 10/100/1000Base-T Ports
- Layer 2 and Layer 3 Management
- Full Wire-speed Non-blocking Forwarding
- IP Routing Functionality
- Access Control List (ACL) Support
- QoS Management
- Port Mirroring
- Jumbo Frame Support (10 kB)
- Fast Boot
- Field Upgradable Firmware
- System Resources (IPMI)
  - Temperature Sensors
  - Elapsed Time Recorder
  - Real time clock
  - Power Monitor
- Built-in Test Support
- Vibration and Shock Resistant
- Lightning Protection
- D38999 I/O and Power Connectors
- EMI/RFI Filtering
- Environmentally Sealed (IP65)

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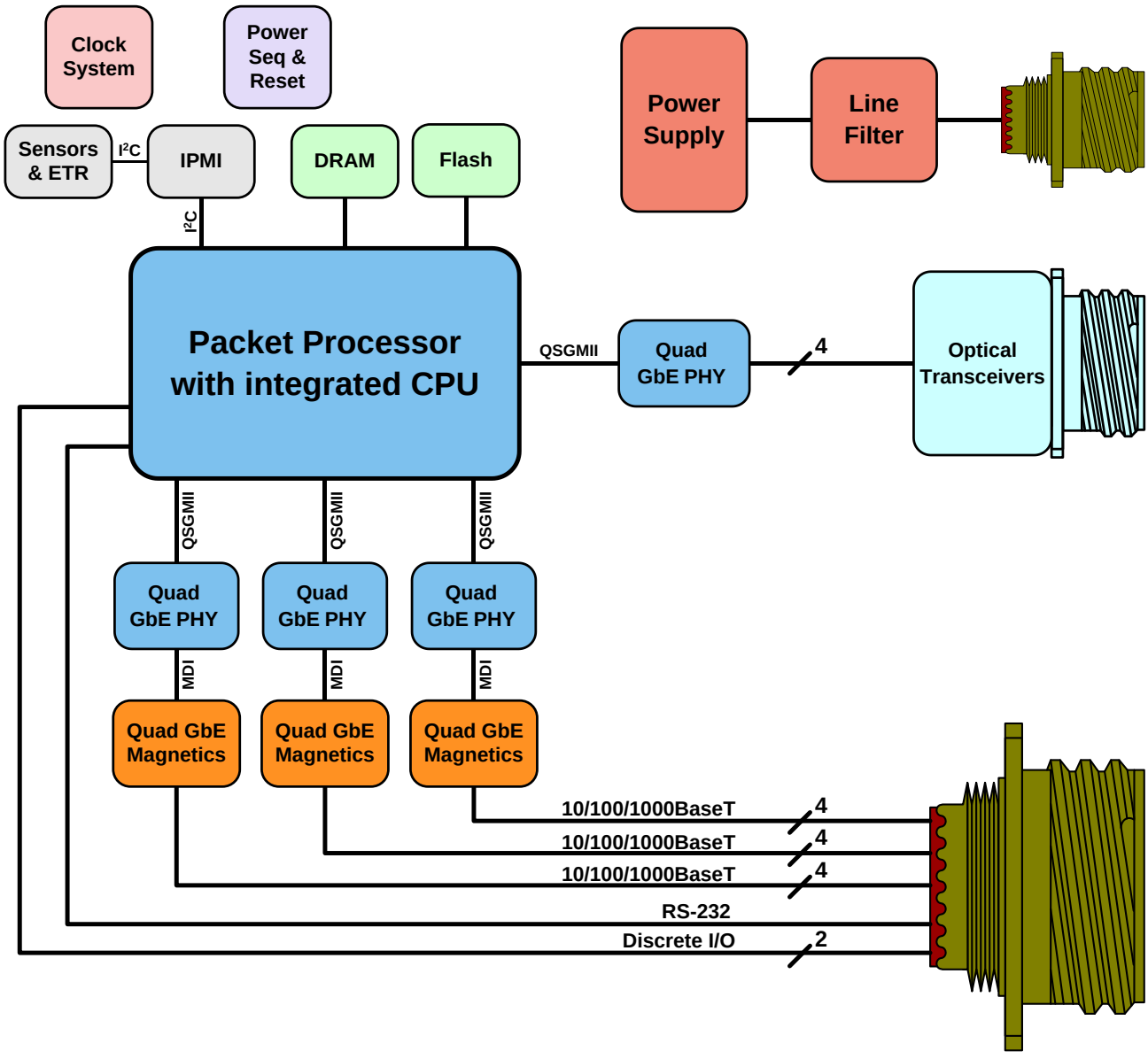
Aitech's A664 is a rugged 16-port managed Gigabit Ethernet switch comprising twelve 1000Base-T and four 1000Base-SX multimode optical ports housed in a rugged enclosure. The A664 is based on a Multi-Layer Gigabit Ethernet Switch packet processor, which performs Layer 2 and Layer 3 routing and switching for the 16 Gigabit Ethernet ports.

The quad multimode optical fiber interface supports applications where the copper cable link distance, bandwidth, or physical characteristics (weight or bulk of twisted pair, twinax or quadrax copper conductors) are unacceptable.

An integrated high performance, low power ARM compatible Sheeva™ CPU core, operating at 800 MHz, functions as a Service Processor and interfaces to a high speed DDRII-320 MHz memory controller.

Management devices include power controller, elapsed time recorder, temperature sensors, and real time clock.



A664 Functional Block Diagram

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Switch Architecture

Ethernet Switch Controller	L2/L3 Switch packet processor running Routing OS application
Management Processor Subsystem	• ARM compatible Sheeva™ CPU core operating at 800 MHz • System Memory - 512 MB of DDRII-320 MHz • System Flash – 64 MB
Additional System Resources (IPMI)	• Temperature Sensors • Elapsed Time Recorder • Real Time Clock • Power Monitor

I/O

RS-232 Serial	Ethernet switch management console port
Fiber Optic Ports	• 4 Fiber Optic Ports • Supports 1000 Mbps rates through Short Reach Multimode Fiber Optic cable • Optical fiber link distances up to 550 meters • Multimode, 850 nm VCSELs
Copper Ports	• Four Copper Ports • Supports 10/100/1000 Mbps rates through 10Base-T/100Base-TX/1000Base-T connections
Discretes (GND/Open)	• Reset - input • Ready for traffic indication - output

Ethernet Switch Features

Port Features	• Auto Negotiation Support • Auto MDI/MDIX Support • Head of Line (HOL) Blocking Prevention Support • Flow Control (IEEE 802.3X) Support • Back Pressure Support	• Jumbo Frames Support (10 kB) • Cable Analysis • Manual Port Control and Identification Support • Full and Half-Duplex Operation • Port Status Indicator LEDs
Mirroring	• Port Mirroring Support	• VLAN Mirroring Support
MAC Address Support	• VLAN-Aware MAC-based Switching • MAC Address Aging	• Up to 16k MAC Entries • Static MAC Entries
802.1Q-based VLAN Support	• Up to 4094 VLANs • Predefined Default VLAN • Protected Ports • Private VLAN Edge • GVRP & GARP • Protocol-based VLANs • Port-based VLANs	• Subnet-based VLANs • MAC-based VLANs • Nested VLANs (QinQ) • Multicast VLAN Registration (MVR) • Multicast TV VLAN • Auto Voice VLAN
Multicast Support	• Static Multicast Groups (256 Groups) • IGMP Snooping (IGMP v1, v2, & v3) • Unregistered Multicast Filtering	• MLD Snooping (MLD v1 & v2) • IGMP Querier
Spanning Tree	• Per-device Spanning Tree (IEEE 802.1D) • Rapid Spanning Tree – RSTP (IEEE 802.1W) • Multiple Spanning Tree – MSTP (IEEE 802.1S) • Spanning Tree Fast Link Option • STP Root Guard Support	• STP BPDU Guard Supported • BPDU Flooding/Filtering Support (when STP is disabled on the switch or on the port) • Loopback Detection Support

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Link Aggregation	• Up to 8 LAGs, each with up to 8 port members • LACP Support	• LAG Balancing Algorithm Support
Access Control Lists	• Up to 2k ACLs Support • MAC ACL Condition Support	• IP ACL Condition Support • Time-based ACL Support
Supported ACL Actions	• Forward Packet • Drop Packet	• Drop Packet and Disable Ingress Port
QoS/CoS and Rate Limiting	• QoS Basic Mode Support • QoS Advanced Mode Support • Trust Configuration in Basic Mode • Port Based Priority Support • Queue Mapping for 8 and 4 Queue Devices • QoS Policy Customization	• QoS Statistics • Ingress Rate Limiting Accurate Mechanism • Egress Rate Limiting (Shaping) • Rate Limiting Action in ACL • Packet Storm Control
System IP Address Management	• Static Assignment of up to 32 IP Addresses • Management VLAN • DNS Client	• IPv6 Host • DHCP Server • DHCP Relay Option 82
IP Routing	• Up to 128 Static Routes • Up to 1024 ARP Entries • Proxy ARP Support	• L3 DHCP Relay Support • UDP Relay Support • RIP v2 Support
Security	• MAC-based Port Security Support • IEEE 802.1X Support • Guest VLAN Support • Unauthenticated VLAN Support • Dynamic VLAN Assignment Support • Dynamic ACL (DACL) for Ingress Support • Remote Authorization and Authentication (RADIUS) Support (8 servers)	• Radius Accounting Support • TACACS+ Support (8 servers) • Local Authentication Support • Authentication Method Configuration & Priority • DHCP Snooping Support • IP Source Guard Support • Dynamic ARP Inspection Support
Graphical Switch Management Interface	• Embedded Web Server provides HTML Pages for Switch Management from Web Browser Interface	• HTTP/HTTPS (SSL v3) Support
CLI Switch Management	• Multi-Session Telnet Connections Support • SSH Connections Support	• RS-232 Console Port Connection Support
Management Features	• Inactivity Timer for Management Sessions • Password Security Support • Cryptography Support • Certificate Expiration Support • Event Logging Support • Multiple User Support	• Soft Reset Support • SNTP (Simple Network Time Protocol) Support • Ping Facility Support • Traceroute Support • LLDP (IEEE 802.1AB) + LLDP MED Support • Switch Auditing Support
Configuration Management	• Configuration File Handling • Clearing and Deleting	• HTTP/S Down/Upload of Configuration Files • Auto Configuration Backup
SNMP	• SNMP v1, v2c,& v3 Support • MIB File Support	• Other MIB Placing • OID Placing

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Monitoring	• CPU Utilization • Port/Link Utilization • TCAM Utilization • RMON Support	• sFlow (flow monitoring) Support • Power Supply Status • Temperature Status
Extended L3 Features	• Dual IP Stack Support • RIP v6 Support • OSPF v3 Support	• Routing Table Management and Route Redistribution • Route Maps Supported • PIM Support
Built-In Tests	• Power-Up BIT • Background Periodic/Continuous BIT	• Initiated BIT • Covers all major Ethernet switch hardware devices
Boot-Up time	• Start Ethernet traffic forwarding in less than 15 seconds	
Firmware Upgrade	• Field Upgradable Firmware	

Mechanical

Dimensions	64.8 x 230.5 x 180.5 mm [2.55 x 9.07 x 7.11"]
Weight	<2.5 kg [5.5 lb]

Power

Input Power	• 85% Typical Efficiency Internal Power Supply • Wide input voltage range operation 12 – 32Vdc • EMI/RFI Input Filter	• Input Transient Protection • Input Reverse Polarity Protection • Hold Time support – 50mSec. • MIL-STD-704D/E , MIL-STD-1275 Compliance
Power Consumption	25 W Max. Power consumption is dependent on Ethernet Ports utilization	

Environmental

Operating Temp.	-40 to +60 °C ambient
Non-Operating Temp.	-55 to +105 °C
Vibration	V3 per VITA 47
Operating Shock	OS2 per VITA 47
Altitude	-1,500 to +60,000 ft. (1)
Relative Humidity	0 – 100%
Ingress Protection	IP65
Rain	MIL-STD-810F, Method 506.4, Procedure III
Dust	MIL-STD-810F, Method 510.4, Procedure I & II
Salt Fog	MIL-STD-810F, Method 509.4
Bench Handling	MIL-STD-810F, Method 516.5, Procedure VI
Fungus	Fungus Resistant
EMI/RFI	MIL-STD-461

Notes: (1) Depending on temperature and system power dissipation

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Ordering Information

2	A664 -	0	-		

Ruggedization
2 = Rugged

Reserved

Configuration Number
To be assigned by Aitech

Example: 2A664-0-00

Optional Accessories

MCS664-1-00	Set of Front Panel Mating Connectors
TCA664-J1-00	J1 Power Cable
TCA664-J2-00	J2 I/O Breakout Cable (12x 1000Base-T, RS-232 port, Discretes)
TCA664-J3-00	J3 I/O Breakout Cable (4x Fiber Optic with LC Connections)
PS28-150-00	24 Vdc/100 W External Power Supply (100 - 240 Vac input)

Contact Aitech

Contact your Aitech sales representative for additional product information, and for inquiries regarding customized configurations of the A664.