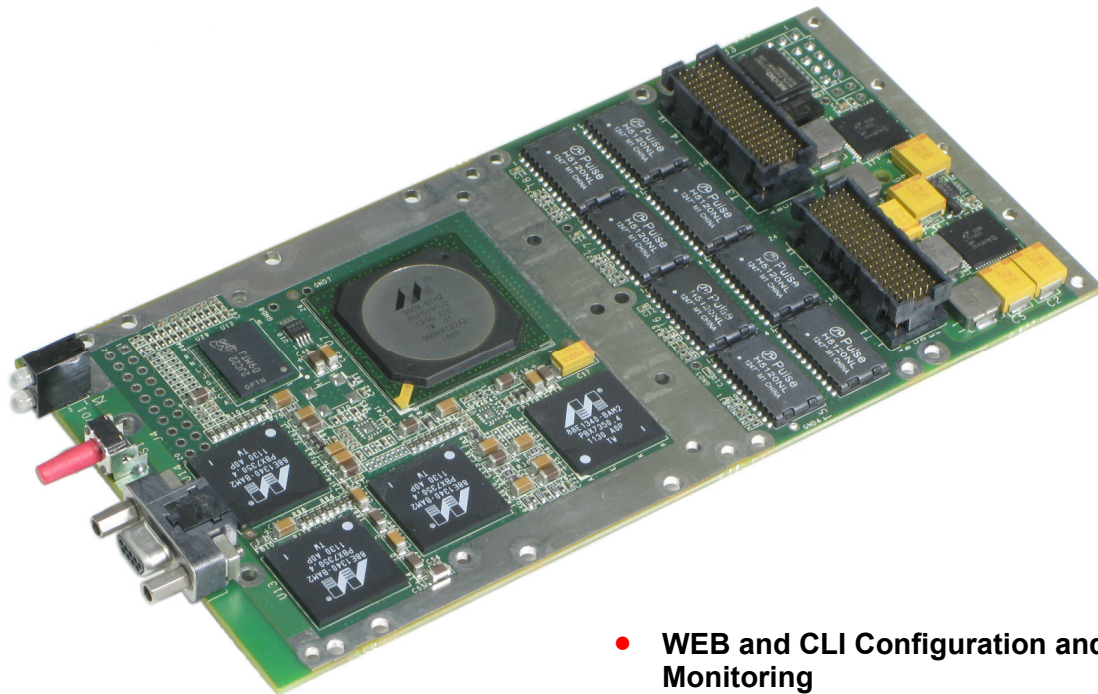




# M620

## XMC Gigabit Ethernet Switch

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- Single-Width XMC
- Compatible with VITA 42
- Layer 2 and Layer 3 Management
- Up to 16 Fast/Gigabit Ethernet Ports, Three Standard Configurations
  - 8 x 10/100/1000Base-T Ports
  - 16 x 1000Base-BX/KX Ports
  - 16 x 10/100Base-TX Ports
- Two 10-Gigabit Ethernet XAUI Ports, VITA 42.6 compliant (optional)
- Full Wire-speed Non-blocking Forwarding
- IP Routing Functionality
- Advanced Spanning Tree Algorithms (RSTP, MSTP)
- Access Control List (ACL) Support
- QoS Management
- IPv4/v6 Differentiated Services (DiffServ)/DSCP Traffic Prioritization
- WEB and CLI Configuration and Monitoring
- 802.1Q-based VLAN Support
- Port-level Security via 802.1X Authentication
- SNMP v1, v2c, v3
- Supports OSPF v3, PIM
- 4/8/16 Group LAG Support with Protocol (LACP)
- All types of Storm Control
- Port Mirroring for Noninvasive Monitoring of Switch Traffic
- Jumbo Frame Support (10 kB)
- IPMI Support
- Elapsed Time Recorder
- Temperature Sensors
- Conduction and Air-Cooled Versions
- Vibration and Shock Resistant

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**Aitech Defense Systems, Inc.**

A member of the Aitech Rugged Group

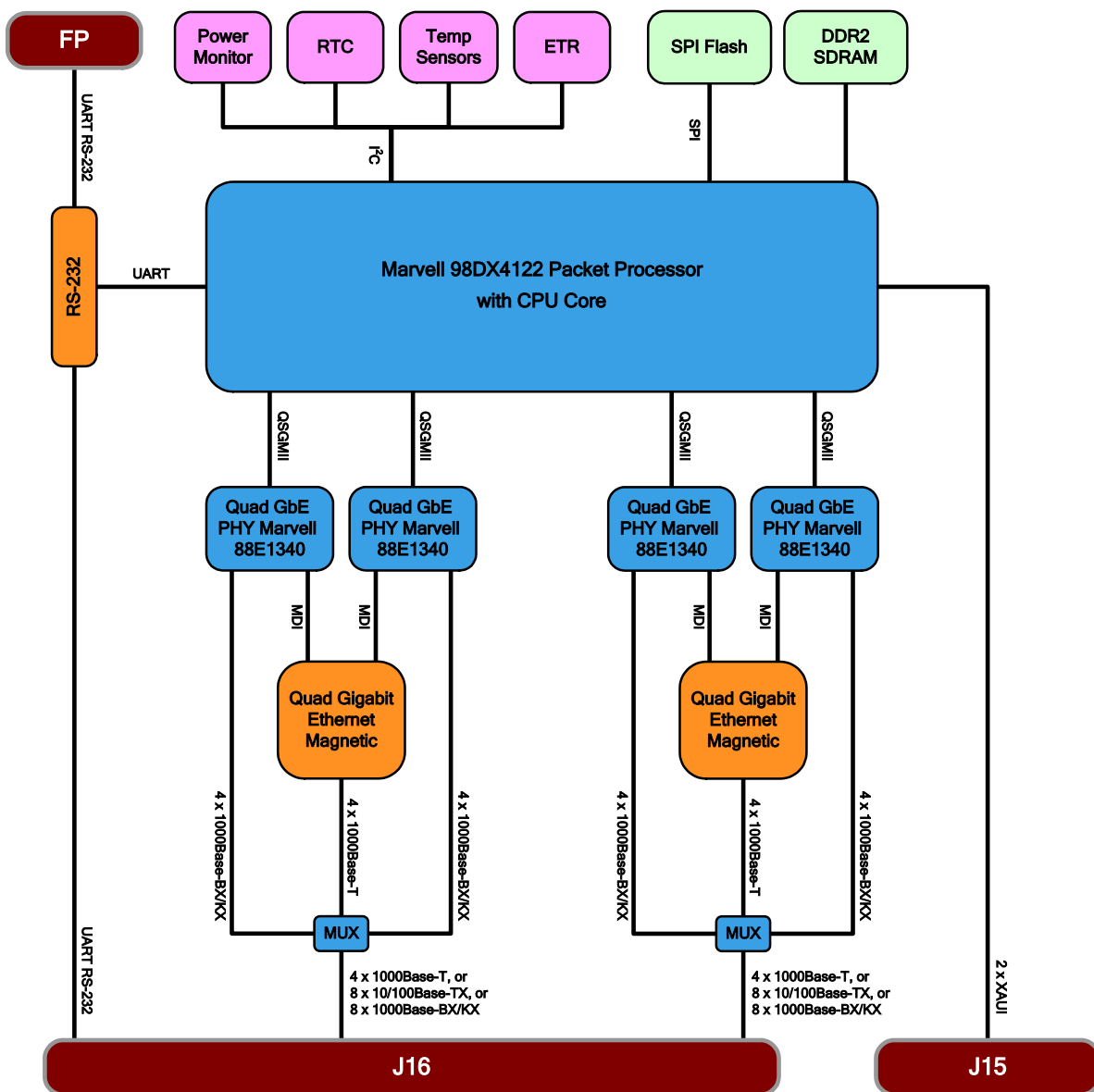
19756 Prairie Street, Chatsworth, CA 91311

Tel: (888) Aitech-8 (248-3248) Fax: (818) 407-1502 e-mail: sales@rugged.com web: www.rugged.com

## Managed Gigabit Ethernet XMC Switch

Aitech's M620 XMC is a high-performance Gigabit Ethernet Switch for embedded and harsh environment applications. The M620 is based on the Marvell® Prestera® 98DX4122 Gigabit Ethernet Switch Controller and Marvell's Routing OS. The M620 includes an embedded web server, providing HTML pages that allow the user to manage the switch. The simplified browser-based user interface is an intuitive management tool, enabling convenient use of the switch's comprehensive feature set for a better-optimized network. Command line administration is also supported over network and RS-232 connections.

M620 mechanical and electrical design guarantees reliable operation over the full range of rugged application environments. It is available in industry standard conduction-cooled and air-cooled form factors.



M620 Block Diagram



## **Functional Description**

### **System Architecture**

Aitech's M620 is based on the Marvell Prestera 98DX4122 Multi-Layer Gigabit Ethernet Switch packet processor. The Prestera is able to perform Layer 2 and Layer 3 routing and switching for up to 16 Fast/Gigabit Ethernet Ports and up to two 10-Gigabit Ethernet ports. 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.

Four multiplexed multi-rate QSGMII ports, connected to four quad PHY controllers, support up to 16 Fast/Gigabit Ethernet ports. Optionally, two XAUI links can be routed to the XMC P15 connector per VITA 42.6, providing two 10-Gigabit Ethernet ports.

Board management devices include power controller, elapsed time recorder, temperature sensors, and RTC residing on the Prestera's I<sup>2</sup>C bus.

### **Port Description**

The M620 is offered in three standard variants, offering a choice of the following Ethernet port configurations:

- 8 x 10/100/1000Base-T Gigabit Ethernet Ports
- 16 x 1000Base-BX/KX SERDES Ports
- 16 x 10/100Base-TX Fast Ethernet Ports

The M620 is also offered with the optional addition of two 10-Gigabit Ethernet XAUI ports.

All configurations are performed at the factory per customer order. Additional configurations are available by customer request.

### **Port Features**

- Auto Negotiation Supported
- Auto MDI/MDIX Supported
- Head of Line (HOL) Blocking Prevention Supported
- Flow Control (IEEE 802.3X) Support
- Back Pressure Support
- Jumbo Frames Support
- Cable Analysis
- Manual Port Control and Identification Supported

### **Mirroring**

- Port Mirroring Supported
- VLAN Mirroring Supported

### **MAC Address Support**

- VLAN-Aware MAC-based Switching Supported
- MAC Address Aging Supported
- Up to 16K MAC Entries
- Static MAC Entries Supported

### **VLAN Support**

- Up to 4094 VLANs Supported
- Predefined Default VLAN
- Protected Ports Supported
- Private VLAN Edge Supported
- GVRP & GARP Supported
- Protocol-based VLANs Supported
- Port-based VLANs Supported
- Subnet-based VLANs Supported
- MAC-based VLANs Supported
- Nested VLANs (QinQ) Supported
- Multicast VLAN Registration (MVR) Support
- Multicast TV VLAN Support
- Auto Voice VLAN Support

### **Multicast**

- Static Multicast Groups (256 Groups Supported)
- IGMP Snooping Supported (IGMP v1, v2, & v3)
- MLD Snooping Supported (MLD v1 & v2)
- Unregistered Multicast Filtering Supported
- IGMP Querier Supported

### **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 Supported
- STP BPDU Guard Supported
- BPDU Flooding/Filtering Supported (when STP is disabled on the switch or on the port)
- Loopback Detection Supported

### **Link Aggregation**

- Up to 8 LAGs Supported, each with up to 8 port members
- LACP Support
- LAG Balancing Algorithm Support

### **Access Control Lists**

- Up to 2k ACLs Supported
- MAC ACL Condition Supported
- IP ACL Condition Supported
- Time-based ACL Supported

### **Supported ACL Actions**

- Forward Packet
- Drop Packet
- Drop Packet and Disable Ingress Port



### **QoS/CoS and Rate Limiting**

- QoS Basic Mode Supported
- QoS Advanced Mode Supported
- Trust Configuration in Basic Mode
- Port Based Priority Supported
- 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 Supported
- L3 DHCP Relay Supported
- UDP Relay Supported
- RIP v2 Supported

### **Security**

- MAC-based Port Security Supported
- IEEE 802.1X Support
- Guest VLAN Support
- Unauthenticated VLAN Support
- Dynamic VLAN Assignment Supported
- Dynamic ACL (DACL) for Ingress Supported
- Remote Authorization and Authentication (RADIUS) Support (8 servers)
- Radius Accounting Supported
- TACACS+ Support (8 servers)
- Local Authentication Support
- Authentication Method Configuration & Priority
- DHCP Snooping Supported
- IP Source Guard Supported
- Dynamic ARP Inspection Supported

### **Graphical Switch Management Interface**

- Embedded Web Server provides HTML Pages for Switch Management from Web Browser Interface
- HTTP/HTTPS (SSL v3) Supported

### **CLI Switch Management**

- Multi-Session Telnet Connections Supported
- SSH Connections Supported
- RS-232 Console Port Connection Supported

### **Management Features**

- Inactivity Timer for Management Sessions
- Password Security Supported
- Cryptography Supported
- Certificate Expiration Support
- Event Logging Supported
- Multiple User Support
- Soft Reset Supported
- SNTP (Simple Network Time Protocol) Support
- Ping Facility Supported
- Traceroute Supported
- LLDP (IEEE 802.1AB) + LLDP MED Supported
- Switch Auditing Supported

### **Configuration Management**

- Configuration File Handling
- Clearing and Deleting
- HTTP/S Down/Upload of Configuration Files
- Auto Configuration Backup

### **SNMP**

- SNMP v1, v2c, and v3 Supported
- MIB File Support
- Other MIB Placing
- OID Placing

### **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



# M620

## XMC Gigabit Ethernet Switch

### Front Panel Connectors and Switches

The air-cooled version of the board is provided with a front panel, including the following:

- Two Power and System Status bicolor LEDs
- One RS-232 Debug Connector
- Reset Pushbutton

### Mechanical Features

#### Form Factor and Dimensions

The air-cooled and conduction-cooled variants of the M620 are compliant with the mechanical and dimensional requirements of ANSI/VITA 42.0-2008, enabling them to be used in conjunction with IEEE 1101.1 (air-cooled) and IEEE 1101.2 (conduction-cooled) compliant carrier boards with XMC connectors.

The mechanical/thermal design of the M620 ensures effective thermal paths for cooling of high power components. The resulting optimal heat distribution allows operation of the M620 at extreme environmental conditions.

### Weight

Air-cooled: < 250 g (0.55 lbs)  
Conduction-cooled: < 300 g (0.66 lbs)

### Thermal Management

Careful mechanical design, including custom heatsinks combined with a metal frame, allow for optimal heat dissipation and relief of the board. The M620 is also equipped with three temperature sensors, located at temperature-critical locations, to monitor board temperature and provide temperature data to the user.

### Power Requirements

The M620 is powered by +3.3Vdc and VPWR (+5V/+12V are both supported seamlessly) supplied by the host/carrier board.

All other power sources required by M620 resources are generated on board.

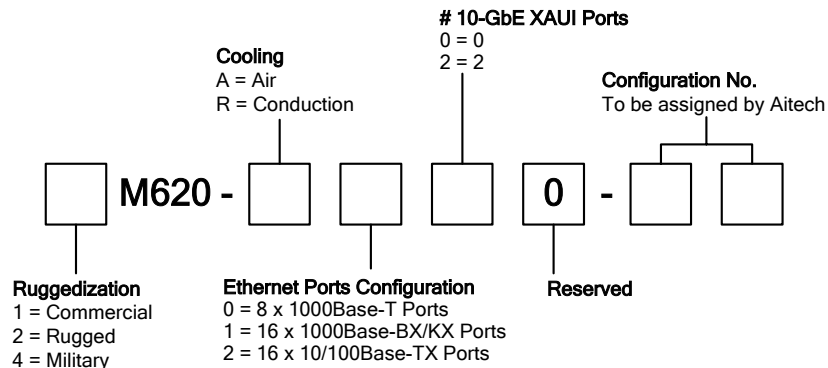
Power consumption of the M620 is 15W, as follows:

+3.3 V      0.7 A  
+5.0 V      2.5 A

### Environmental Features

Please refer to the Aitech Ruggedization datasheet.

## Ordering Information



Example: 4M620-R120-00

For more information about the M620 or any Aitech product, please contact Aitech Defense Systems sales department at (888) Aitech-8 (248-3248).

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M620T1013R10

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