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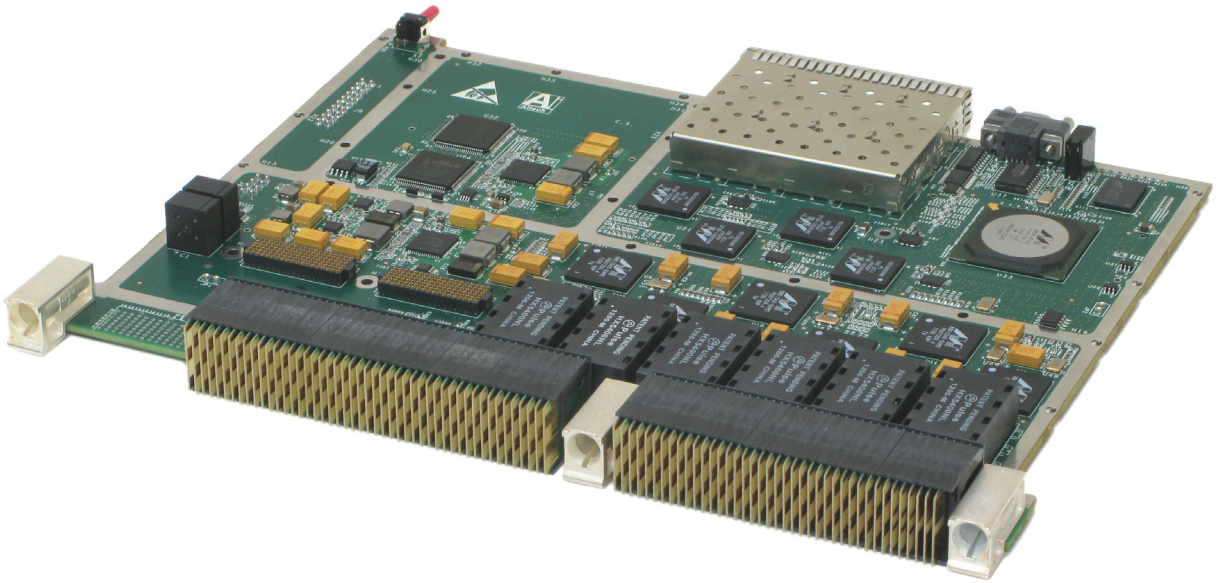
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C670
6U VPX Gigabit Ethernet Switch



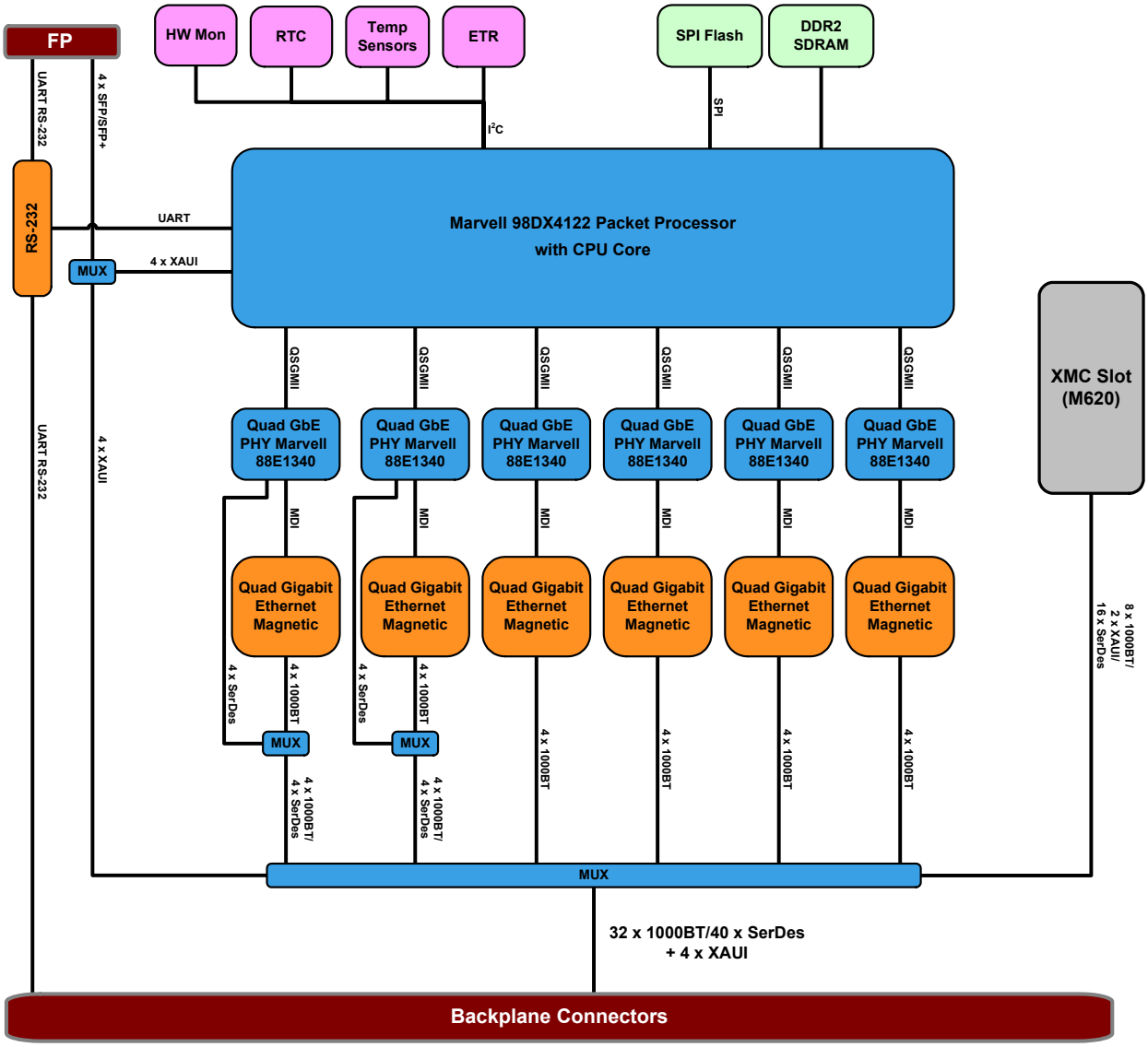
- Rugged 6U VPX Single-Slot Ethernet Switch
- Compatible with VITA 65 and VITA 46.20
- Layer 2 and Layer 3 Management
- 24 GbE Ports and Four 10-GbE Ports
- Expandable to 40 total GbE Ports with M620 XMC
- Full Wire-speed Non-blocking Forwarding
- IP Routing Functionality
- Advanced Spanning Tree Algorithms (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
- VITA 48 (REDI) Compliant Option
- Vibration and Shock Resistant

Aitech Defense Systems, Inc.
A member of the Aitech Rugged Group
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Expandable Managed Gigabit Ethernet VPX Switch

Aitech's C670 is a high-performance 6U VPX Gigabit Ethernet Switch for embedded and harsh environment applications. The C670 is based on the Marvell® Prestera® 98DX4122 Gigabit Ethernet Switch Controller and Marvell's Routing OS. The C670 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.

C670 mechanical and electrical design guarantees reliable operation over the full range of rugged application environments. It is available in industry standard 0.8" pitch conduction-cooled or 1" pitch air-cooled form factors. The C670 is also available in a 0.85" pitch conduction-cooled version for the VITA 48 (VPX REDI) configuration, providing support for two level maintenance requirements.



C670 Block Diagram

Functional Description

System Architecture

Aitech's C670 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 24 Gigabit Ethernet Ports and up to four 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.

Six multiplexed multi-rate network QSGMII ports, connected to six quad PHY controllers, support 24 Gigabit Ethernet ports. Four XAUI links provide connection to four 10-Gigabit Ethernet ports.

The C670 XMC slot can accommodate Aitech's M620, expanding the number of supported GbE ports to a total of 40.

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

Port Description

All Gigabit Ethernet ports support 10/100/1000 Mbps rates through 10Base-T/100Base-TX/1000Base-T connections. Optionally, eight of the 24 ports can be factory configured as SERDES 1000Base-X ports.

Four 10-Gigabit Ethernet ports are provided by four XAUI links, which are routed to backplane connectors on the conduction-cooled C670, or front panel SFP+ connectors on air-cooled boards.

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

Front Panel Connectors and Switches

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

- Four 10-GbE Ports with support for SFP+ Fiber Modules.
- Two Power and System Status bicolor LEDs
- One RS-232 Debug Connector
- Reset Pushbutton

The C670 ships with a cage to accommodate the four SFP+ modules, but the SFP+ modules are not included. A list of supported SFP+ modules can be found in the C670 User's Guide.

VPX Capabilities

OpenVPX Slot Profile

The C670 supports the SLT6-SWH-4F24T-10.4.4 switch slot profile, as defined in the OpenVPX specification (VITA 65).

VPX REDI (VITA 48)

The C670 is VPX REDI compliant. It supports two-level maintenance per VITA 48, with top and bottom covers shielding the complete C670 assembly.

Mechanical Features

The C670 is available in both air-cooled and conduction-cooled mechanical formats. Both are single slot 6U modules.

A custom metal frame integral to the conduction-cooled version of the C670 provides excellent rigidity and shock resistance.

Dimensions

Air-cooled:	per ANSI/VITA 46.0
Conduction-cooled:	per ANSI/VITA 46.0
Conduction-cooled REDI:	per VITA 48.2

Weight

Air-cooled:	< 1200 g (2.7 lbs)
Conduction-cooled:	< 1350 g (3.0 lbs)
Conduction-cooled REDI:	< 1400 g (3.1 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 C670 is also equipped with three temperature sensors, located at temperature-critical locations, to monitor board temperature and provide temperature data to user.

Power Requirements

The C670 takes all its power from the backplane. It is powered by +5 Vdc. The board does not require any additional power supplies – all additional required voltages are generated on-board.

The C670 has a total power consumption of 32.6 W (5 V, 6.52 A).

Environmental Features

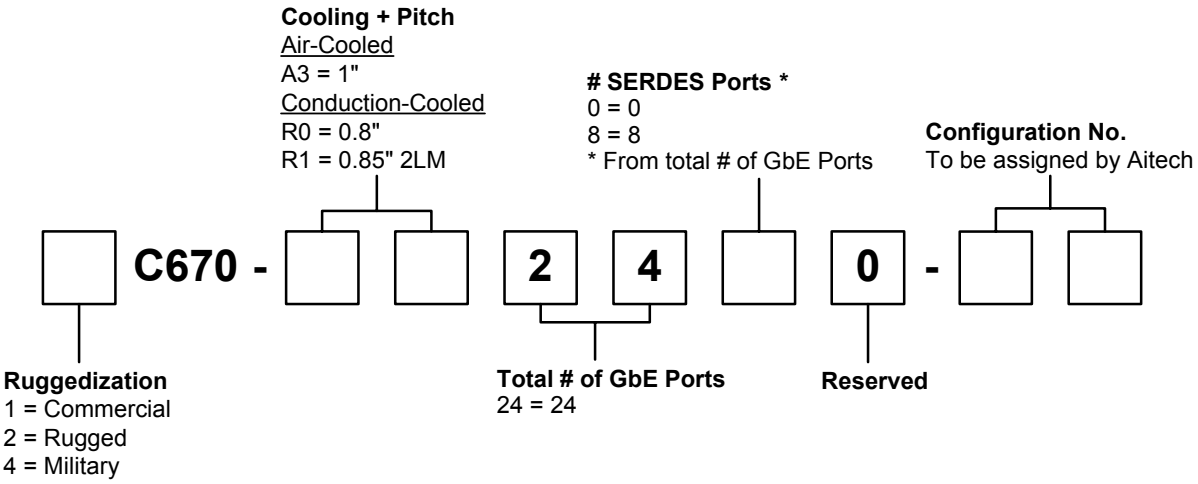
Please refer to the Aitech Ruggedization datasheet.

Accessories

For system integration and other development purposes, the TM670 Rear Transition Module (RTM) provides convenient access via standard connectors to all C670 I/O interfaces. The RTM supports both the air-cooled and conduction-cooled versions of the C670 when mounted in a commercial air-cooled chassis.

C670
6U VPX Gigabit Ethernet Switch

Ordering Information



Example: 4C670-R12400-00

For more information about the C670 or any Aitech product, please contact Aitech Defense Systems sales department at (888) Aitech-8 (248-3248).

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