T4300a - 6U CPCI Ethernet Switch

Gigabit & 10 Gb with L3+ IP Router

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Embedded Computing Solutions by Elma

The T4300a CompactPCI 2.16 Ethernet switch features twenty four (24) Gigabit Ethernet ports and up to four (4) 10 Gigabit Ethernet ports with full wire speed switching capacity of 125 Mpps.

Description

The T4300a is built on the latest generation of Gigabit switch engine and PHY transceiver. Its highly integrated chip incorporates a full Layer 3 router with optimized power consumption.

T4300a supports full-wire speed L2 bridging and L3 IPv4/v6 Unicast and Multicast routing with L2-L4 advanced traffic classification, filtering and prioritization. For instance, it can provide strict priority traffic and filtering needed for delay-sensitive or critical applications.

T4300a ports are compatible with both PICMG 2.16 or VITA 31.1 systems.

Twenty Gigabit Ethernet ports are routed on rear I/O in compliance with PICMG 2.16. The four remaining Gigabit Ethernet channels are available on the front or on the rear panel. On the front panel, depending on equipment, those four channels are available for copper links using RJ45 or fiber links using LC connectors.

Two 10G ports are available on the front panel according to the XAUI/10GB CX4 standard. The two others are available through an on-board high speed connector.

T4300a provides the ideal solution to implement high port density stackable systems.

Management Capabilities

The T4300a can be monitored from a browser, a CLI or SNMP. The whole system can be easily managed and handled. A comprehensive Built-in Test makes the maintenance of this switch easy. Many additional functions are provided on this fully managed version.

Configuration of all the PHY and switch parameters, ports monitoring, static MAC address, QoS policy, Multicast and VLAN control, STP/RSTP protocols, MAC security, monitoring of all statistical counters, and an extensive list of RMON counters.

The Switchware software provides layer 3 functions, allowing local IP forwarding (IPv4/ IPv6), static and dynamic protocols (RIP, OSPF) routing, proxy-ARP and DHCP-relay. The IP routing and the L3 protocols are carried out by the processor and the forwarding by a full-wire speed L3 engine router.

The T4300a VME Gigabit Ethernet switch is available from standard to conduction-cooled temperature grades.
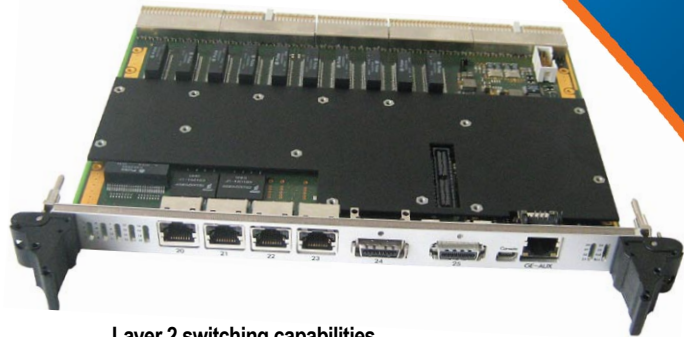
Layer 2 switching capabilities
• 16K entry forwarding database
• Automatic or controlled learning and aging routing table
• Port and MAC access control
• Flow control and backpressure
• 10 KB Jumbo Frame
• IGMPv3 & MLDv2 snooping
• Rapid Reconfiguration 802.1w

Link aggregation, static or LACP

Bandwidth management
• Unicast & Multicast rate limiting
• Egress rate shaping with rate ranging port from 64K to 1Gbs
• Minimal bandwidth guarantee per traffic Class

VLANs services
• 4K actives VLANs
• 4K Bridge mulcticast groups
• Flexible VLAN assignment 802.1Q port -based, protocol based 802.1v, service Vlans 802.1ad, Policy-based Vlans

Quality of Service engine
• 8 priority queues per port
• Flexible bandwidth management with hierarchical shaping

Unicast and Multicast routing engine
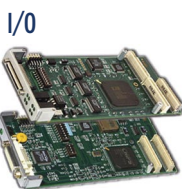• RIPV2, OSPF V2 Routing
• Proxy-ARP, DHCP relay

IPV6 capable

Security features
• 802.1X Port authentication
• Multicast/Broadcast limiting
• STP/RSTP protocol
• Virtual cable tester On-Line

Flexible management tools
• Web or CLI management
• SNMP (Standard & private MIBs)
• Enhanced Port mirroring
• Easy software updating

ACT/Technico™ brand of Embedded Computing Products

SBCs

I/O

Software

Design & Documentation

Chassis

Modular Storage

T4300a - 6U cPCI Ethernet Switch
Gigabit & 10Gb Ethernet Switch — PICMG2.16 & VITA 31.1

Main Features

Physical layer
• 24 auto-sensing 10/100/1000Mbs ports
• Optional front SX or LX Fiber (LC) interface 802.3u compliant
• Two front XAUI channels
• Two onboard XAUI or HyperStack 12Gbs ports
• Auto-Negotiation with Downshift
• Automatic MDI/MDIX crossover for all 3 speeds of operation
• Automatic polarity correction
• Online virtual cable tester
• Optional fast Ethernet out of band management port

Layer 2 switching
• 802.1D/Q Compliant with a full-line rate Ethernet switching engine
• 16000 MAC address database
• Automatic or controlled aging and learning mechanism
• Tag extraction and insertion
• (802.1p), Jumbo frames up to 10KBytes
• Back pressure for half-duplex, IEEE802.3x for full-duplex
• Discard broadcasts above critical threshold
• Link aggregation with static or dynamic LACP (7 trunks of 8 channels)
• Enhanced port mirroring
• IGMP v2,v3 & MLD v2 snooping

VLAN
802.1Q compliant : supports Layer 2 domain partitioning of up to 4000 active VLANs. VLAN is easily programmed to any value from 1 to 4094 Protocol-based VLAN (802.1v) or Port-based VLAN (802.1v).

Security
Port and MAC access control is compliant with 802.1X authentication.

L2/3 QoS
• Eight queues per port
• Minimal and maximal bandwidth per traffic class using weighted round robin and strict priority scheduling
• 128 quality of service (QoS) profiles for traffic class drop precedence

L3+ services
• L3 Hardware Engine for Unicast and Multicast routing
• IGMP V2, V3
• RIP V2, OSPF V2
• UDP relay & DHCP proxy
• STP/RSTP provides redundant link support
• L2 to L4 advanced traffic classification

Switch Management

Onboard firmware is implemented with comprehensive Built-In Test (loop back mode used during the diagnostic), maintenance functions and network (BootP) updating functions. Management software provides a wide range of configuration L2/3 functions on any port : transmission speed/mode, VLAN, STP parameters, mirroring, QoS, etc. MIB, RMON counters and private information are accessible from the SNMP agent, web-browser or CLI for L3 functions. This Open Application, named **Switchware** is carried out by a PowerPC processor.

Front panel LEDs
• Power supply and Switch status
• Switched ports : activity & link

Power supply
• Estimated Pmax = 30W for 24 Gbs and 2 XAUI
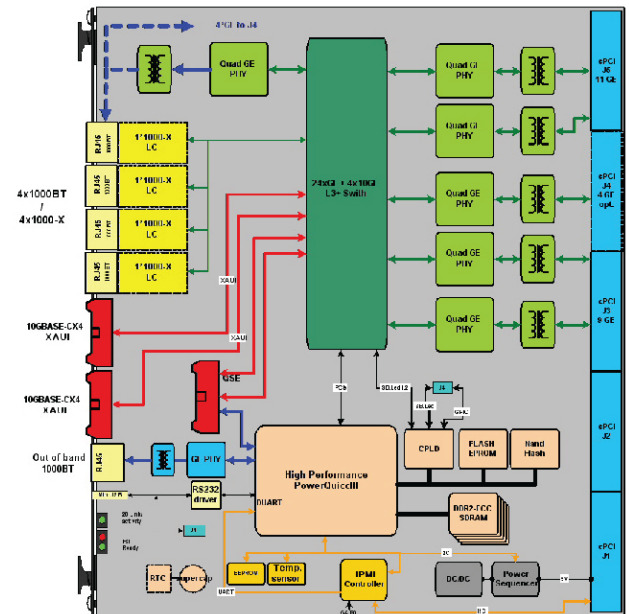• 3.3 VDC / 5 VDC Power Supply 1

Standards Compliance

Emissions
• EN55022 Class B

Immunity
• CEI 6000-4-2 (ESD), 6000-4-3 (Electric field), 6000-4-4 (Burst),
• 6000-4-5 (Surge), 6000-4-6.

Security
• EN60950

Block diagram of the T4300a

Environmental Specifications:
Please consult the **T4300a** page at **www.acttechnico.com**.

Ordering Information:
Please contact our sales department at (**215) 956-1200** or via email at **sales@elma.com.**

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