**Systems By Design**

ACT TECHNICO

RoHS Compliant

Model T4070a 24 Port L2 / L3 VME Gigabit Ethernet Switch
Wire Speed Operation – 37Mpps

Key features of the T4070a:

Layer 2 switching capabilities:

- 16k entry forwarding database
- Automatic or controlled learning and aging routing table
- Full line rate switching engine
- Port and MAC access control
- Flow control and back pressure
- 9KB jumbo frames
- IPV4 IGMP IPV6 MLD snooping
- MAC address transplant for rapid reconfiguration 802.1W
- Link aggregation – static or LACP
- Bandwidth management
  - Multicast rate limiting
  - Egress rate shaping with rate ranging port from 64K to 1 Gbps
  - Minimal bandwidth guarantee per traffic class
- VLAN Services
  - 4K active VLAN
  - 4K bridge multicast groups
  - Flexible VLAN assignment 802.1Q - port based, protocol based 802.1V, service VLANs 802.1ad, policy based VLANs
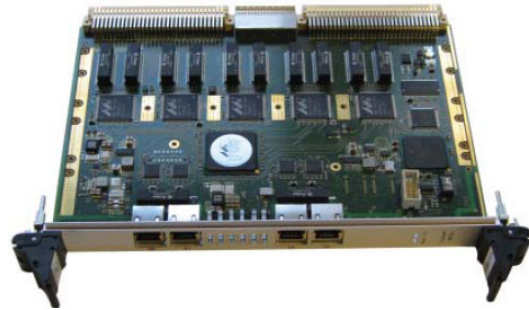
- Quality of Service engine
  - Eight priority ques per port
  - Traffic class assignment per 802.1p tag, MAC address, port, DiffServ, CP or policy engine
- L3 IP V4 and V6 routing engine
  - 1K UC ARP entries
  - RIP V2, OSPF, V2 routing
  - Proxy ARP
  - DHCP relay
- Security features
  - 802.1x port authentication
  - Multicast / broadcast limiting
  - STP / RSTP protocol
  - Virtual cable tester on line
- Flexible management tools
  - Web or CLI management
  - Standard and private MIBS
  - Enhanced port mirroring
  - Easy software updating

T4070a is built on the latest generation of Gigabit switch engine and PHY transceiver It combines a layer 2+ switch and a full layer 3 router in a single board with optimized power consumption.

T4070a supports full-wire speed L2 bridging and L3 routing with L2-L4 advanced traffic classification, filtering and prioritization. For instance, it can provide strict priority traffic needed for delay-sensitive or critical applications.

T4070a ports are compatible with VME64x system. Twenty Gigabit Ethernet ports are routed on the P0 P2 rear connectors. The four remaining Gigabit Ethernet channels are available on the front or on P2. The front option can provide four 1000BT (RJ45) ports or optionally 1000SX/LX fi ber channels. The Gigabit transceivers select automatically the media with activity.

Auto-crossover, auto-polarity, auto-negotiation and automatic MAC address management make T4070a a true Plug&Play switch.
The Marvell Virtual Cable tester allows remote identification of potential cable malfunctions such as excessive pair skew, cable opens, impedance mismatch.
This switch is fully compatible with T4000a, T4020a, T4030a and T4050a range.

Management Capabilities

The T4070a can be monitored from a browser, a remote application via UDP or SNMP. The complete system can be easily managed and configured. A comprehensive Built-In Test enables easier switch maintenance. Many additional functions are provided on this full-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.

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

T4070a can be used as an open switching platform to implement specific functions.

Flexible configurations

Its 6U form factor allows the T4070a to be integrated in VME64x or stand-alone applications. T4070a is available from Standard to Conduction-Cooled grade.

Main features
Physical layer
24 auto-sensing 10/100/1000Mbs ports.
Optional front SX or LX Fiber (LC) interface 802.3u compliant.
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 capability.
Tag extraction and insertion (802.1p), Jumbo frames up to 9KBytes.
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 & MLD snooping.

VLAN
802.1Q compliant with up to 4000 active VLANs.
VLAN programming flexibility to any value from 1 to 4094 Protocol-based
VLAN (802.1v) or Port-based VLAN (802.1v).

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

L2/3 QoS
Eight priority queues per port.
Minimum and maximum bandwidth allocation per traffic class using weighted round robin and strict priority scheduling.
72 quality of services profiles for traffic class drop precedence.

L3 services
RIP V2
OSPF V2
UDP relay
STP/RSTP provides redundant link support. Rapid STP capability for minimizing
STP convergence.
Rear Transition module routes ports to the rear panel - please refer to ordering information.

CompactPCI
3.3VDC Power Supply

Power supply
Pest = 30W (full configuration)

Switch Management
Onboard firmware is implemented with comprehensive Built-In Test (loop back mode used during the diagnostics), 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.

Switch supervision information available in real time.

MIB and RMON counters and private information are reachable from SNMP agent, web-browser and CLI for L3 functions.
This Open Application, named **SWITCHWARE**, is carried out by a PowerPC processor running LINUX.

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

VME
5V only or 5V -3.3VDC balanced Power Supply

Power supply
Ptyp=32W
Standard Conformance

Emissions
EN55022 Class A

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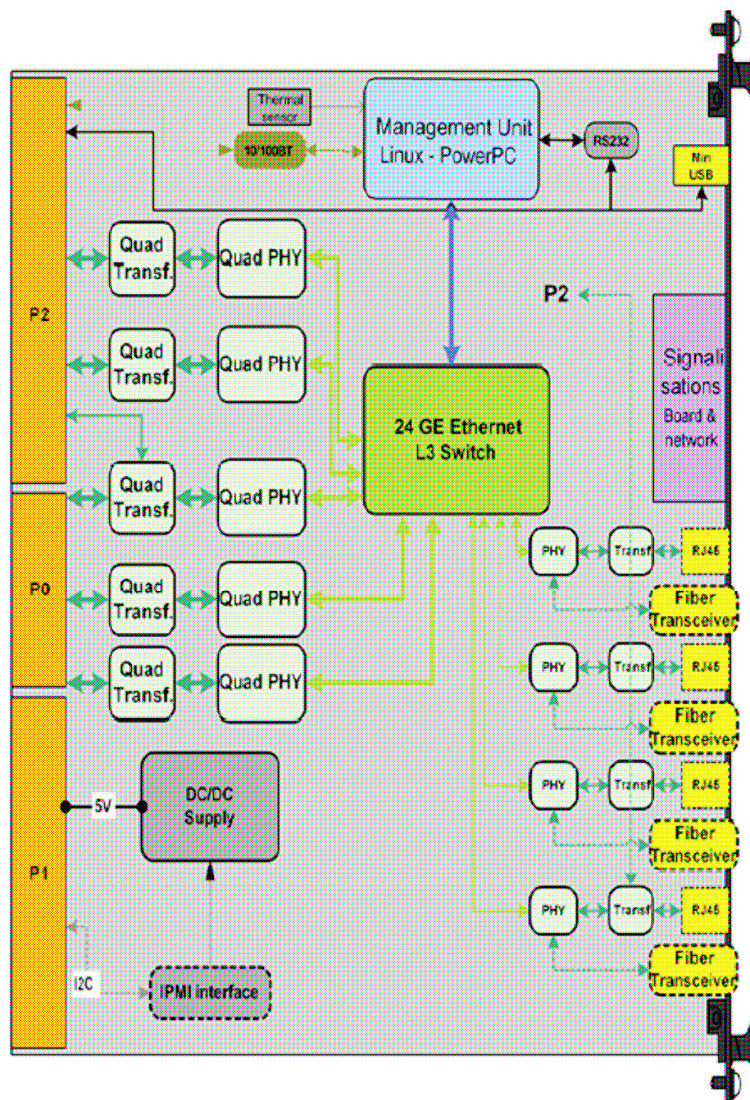6000-4-5 (Surge),

Security
EN60950

MTBF
TBD

Environment
See ordering grade Information.

.
Rear Transition Module:
Ref. TBD

Block Diagram

Environment specifications:
Please refer to ordering information below.

Criterion	Standard Grade	Extended Grade	Rugged Grade	CC Grade
Coating	Optional	Standard	Standard	Standard
Operating Temp.	0 to 55°C	-20 to 65°C	-40 to 75°C	-40 to 75°C
Humidity - non cond.	5 to 90%	5 to 95%	5 to 95%	5 to 95%
Storage Temp.	-45 to 85°C	-45 to 85°C	-45 to 100°C	-45 to 100°C
Sinusoidal Vibration	2G [20..2000]Hz	2G [20..2000]Hz	5G [20..2000]Hz	5G [20..2000]Hz
Random Vibration	0.002g²/Hz [10..2000]Hz	0.002g²/Hz [10..2000]Hz	0.05g²/Hz [10..2000]Hz	0.1g²/Hz [10..2000]Hz
Shock 1/2Sin. 11ms	20G	20G	40G	40G

Ordering Information:
Consult ACT/Technico for specific configurations.

760 Veterans Circle Warminster, Pa 18974 Tel (215) 956-1200 Fax (215) 956-1201

www.acttechnico.com   Form #T4070a Rev. 05/08