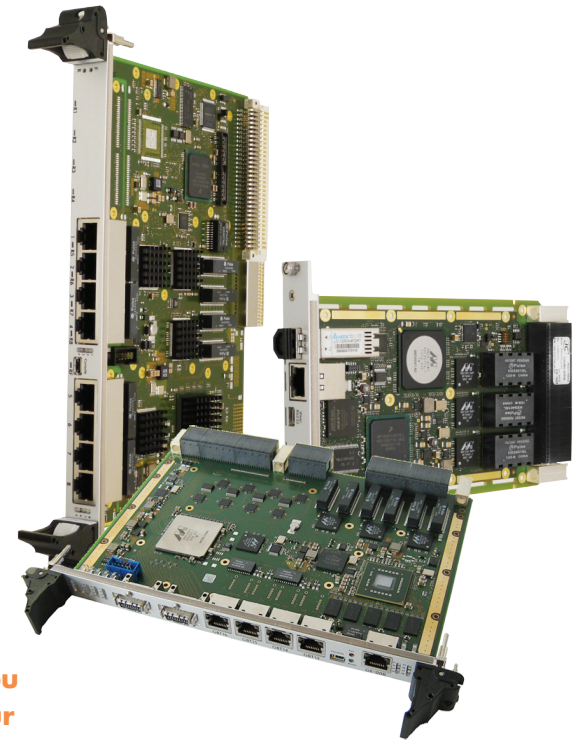
ELMA Embedded Computing

OVERVIEW

High Speed Networking Solutions

ELMA Your Solution Partner

Everything is a node on the network. In defense, in industry, in our workplace and in our homes the hard reality is that reliance on networks is rapidly increasing. Information delivered with speed, accuracy and security relies on networking equipment and solutions that stand up to that challenge. You can rely on Elma Electronic's field-proven Ethernet switches and routing engines.



- Fully managed layer 2/3 routing and unmanaged versions
- Open standards based form factors such as VPX, VME, cPCI and PMC/XMC
- Configurable front and rear I/O port combinations with copper and/or fiber
- Commercial and rugged versions - air and conduction cooled
- Support a wide range of connectivity types including 10GigE and PCIe
- Low volume hardware and software customization
- Comprehensive network, configuration, management and monitoring using our Switchware graphical user interface software
- Configurations with support for IPv4 / IPv6 with advanced networking
- Protocols - see individual datasheets for the complete list of supported protocols

If proven performance in demanding applications is what you look for in an Ethernet switch, then Elma has the answer. Our Ethernet and PCIe switches and routers perform in a wide range of defense, industrial and commercial installations.

- Ground and shipboard secure satellite communication systems for marine vessels and shore stations
- On-board defense systems for airborne, ground and marine vessels
- Radar systems communication in airborne early warning equipment
- Rugged airborne sensor network routing and data recording systems
- Package delivery and transportation logistics
- Semiconductor manufacturing equipment machine control systems
- Multi-processor boot routing and network management
- Radar antenna network routing equipment

Regardless of the application, Elma Electronic has the product and the experience you need to move your project to the next level. We supply networking products from unmanaged to fully managed versions over a wide range of environmental and cost points.

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Networking

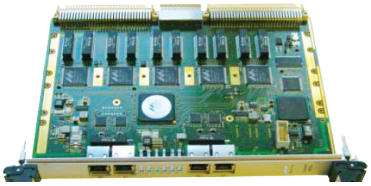
Ethernet Switches
and Routing Engines

Address your networking requirements with the most technologically advanced family of Ethernet and PCIe switching products on the embedded market today. Elma offers solutions for high speed networking in defense, industrial, medical and telecommunication systems.

Visit our website for more information on our complete line of Ethernet switching and routing engines.

T4410a – VPX system versatility with PCIe and gigabit Ethernet switching

- 3U VPX with PCIe data plane and gigabit Ethernet control plane connections
- Fully managed L2 and L3 routing with up to 10 ports



T4070a – High speed performance for large network applications

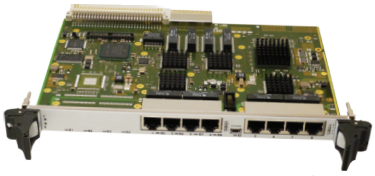
- 6U VME64x with up to 24 gigabit Ethernet ports
- Full wire speed switching up to 37Mpps with L2 and L3 routing

T4050a – Maximum flexibility with copper/ fiber configurable ports

- 3U or 6U PICMG 2.16 configurations with up to 24 gigabit Ethernet ports
- Reliability you can count on with comprehensive and fast power up built in test

T4080a – Legacy Base-T infrastructure support with Base-KX connectivity

- 3U VPX with up to 21 fully managed ports for large network support
- L2 bridging and L3 routing with power optimization to ease SWaP concerns



T4030a – More network configuration options with front and rear ports

- 6U VME and cPCI configurations with up to 21 gigabit Ethernet ports
- Daughter board expansion for added fiber port capability

T4340a – High speed 10 gigabit Ethernet for time critical networking

- 6U VPX with full wire speed switching up to 125Mpps
- Copper and fiber options with up 24 fully managed gigabit and 10 gigabit port combinations

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Switch Configuration Management

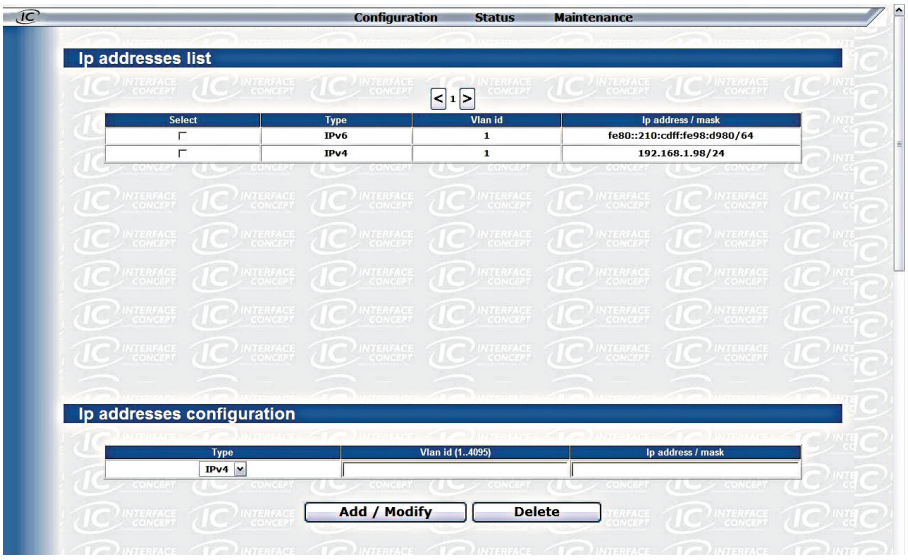
Network Optimization with Switchware®

Switchware is an easy to use graphical user interface (GUI) accessed via a web browser or SNMP. It runs on the PowerPC processor located on all the managed switches.

Switchware manages the configuration of the switch and L3 routing engine as well as the status, maintenance and diagnostic tools. Other features include configurable parameters, password management, Vlan and Vlan tagging, Layer 3 configuration, flow control, priority queues, max packet size, MAC address table, automatic aging, address learning, link status, per port power control (for reduced power), store and forward, link statistics, etc.

Switchware

Sample Interface



Custom is our Standard

Need a low volume custom solution? Whether its hardware or software customization you require, Elma's engineering team will work with you to define the specific needs for your application and we'll offer you a solution that works right out of the box at the production volumes you need.

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Switch and Routing products at a Glance

Model Number	VME	CPCI	VPX	VITA 31.1 PICMG 2.16	3U	6U	10/100 Ports	1Gb Ports	10Gb Ports	PCIe Switching Ports	F / R Ports	CU Ports	Fiber Ports	Layer 2	Layer 2/3 Routing
T4410a			x		x			8		6	F / R	x	x		x
T4370			x		x			16	2		F / R	x	x		x
T4340			x			x		24	2		F / R	x	x		x
T4300a		x		x		x		24	2		F / R	x	x		x
T4100	x	x		x	x	x		10			F / R	x	x		x
T4080a			x		x			12				x	x		x
T4070b	x					x		24			F / R	x	x		x
T4050a		x		x	x	x		24			F / R	x	x		x
T4030a	x	x				x		24			F / R	x	x		x
T4020a		x		x		x		24			F / R	x	x		x
T4000a	x	x				x		24			F	x	x		x
T3300b	x					x	24	6			F / R	x	x		x
T3200b	x	x				x	16	8			F	x	x		x
*T3000a	x	x			x	x	12				F / R	x	x	x	

* Inquire about availability

Environmental Grades

Criterion	Standard Grade	Extended Grade	Rugged Grade	Conduction Cooled
Conformal Coating	Optional	Standard	Standard	Standard
Operating Temperature	0 to 55^{0}C	-20 to 65^{0}C	-40 to 75^{0}C	-40 to 75^{0}C at the thermal interface
Storage Temperature	-45 to 85^{0}C	-45 to 85^{0}C	-45 to 100^{0}C	-45 to 100^{0}C
Recommended Airflow	1m/s	1.5m/s	2m/s	NA
Relative Humidity, non-condensing	5 to 90%	5 to 95%	5 to 95%	5 to 95%
Sinusoidal Vibration	2G [20..2000]Hz	2G [20..2000]Hz	5G [20..2000]Hz	5G [20..2000]Hz
Random Vibration	0.002g^2/Hz 10 to 2000Hz	0.002g^2/Hz 10 to 2000Hz	0.002g^2/Hz 10 to 2000Hz	0.001g^2/Hz 10 to 2000Hz
Shock 1/2 sine, 11ms	20Gs	20Gs	40Gs	40Gs