kontron

» Network Technology «

Industrial and Rugged Applications

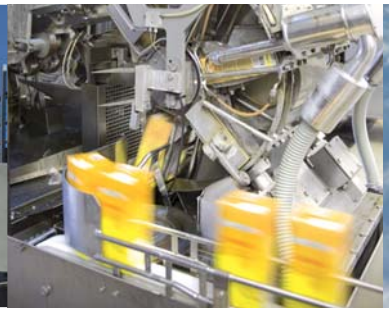
» Switches

» Routers

» Packet Processing

If it's embedded, it's Kontron.

Embedded Network Products – Portfolio Summary

Areas of Application

Network Technology connects all types of computers in Communication Networks, Industrial Production, Process Control, Public Transportation, Engery Production & Distribution, and Defense. Kontron Embedded Network Technology supports the environmental conditions, longtime supply, and special demands for such applications with leading edge features and customer support.

Ease of Use

Kontron Network Technology products are designed to be easy to configure and use by operators in the field. The hardware is designed to suit versatile application demands in the field, where the software provides a extensive feature set and professional interfaces for configuration and remote management. Manuals and product documentation provide clear instructions for operators. All products have the same operation interfaces and thus a familiar environment for operators accross the complete portfolio.

Embedded Life Cycle

According to Long Term Supply and Maintenace agreements, Kontron Network Technology products support an extended lifetime of 10+ years.

Services

The Kontron service portfolio starts with training on switching and network technology, followed by support of our customers through complete life cycle management. Training covers getting started, trouble shooting, and maintenance is supported according to the demand by individual SLAs, including 24/7 support, extended warranty, repair services, spare parts and upgrades. Kontron Technical Support is ready to assist customers world wide during trials, production, and field deployment.

Rugged Solutions

The products support extended temperatue ranges, enhanced shock & vibe, and EMI according to the specific needs in the area of application. Among the specifications coverd are VITA 47 class AC1/2/3/CC4 (cooling), VITA 47 class V1/2/3 (shock and vibration) and EN50155 (railway rolling stock). Standard air cooled releases cover temperature ranges of 0 to 60 C. Rugged air cooled releases cover feature an extended temperature range of -40 to 85 C and qualify according to VITA47-EAC3/6. Conduction cooled releases for an extended temperature range of -40 to 85 C provide a conduction cooled frame with wedge locks and qualify according to VITA47-ECC4.

CompactPCI®




Rack Mount Products

Rack mount products contain well proven Kontron switches and CPUs in combination with housing, power supply, and interface boards, which meet rugged and special environmental conditions.

CompactPCI 6U Products

Products support the PICMG2.16 standard for GbE on the backplane and are available in rugged versions. For high-performance computing, 10 GbE connectivity is provided by front cabling via cost efficient SFP+. For CPU boards, matching 10 GbE XMC NICs are available.

VME and VPX Products

According to VITA 31, the same CompactPCI switches and XMCs can be used in VME systems to provide 1 GbE and 10 GbE connectivity. On VPX, 10 GbE connectivity is provided on the backplane in combination with a VPX switch.

CompactPCI 3U Products

All Kontron CPUs provide network interfaces on the J2 connector on the backplane. Matching managed and unmanaged switches provide GbE connectivity on the backplane, as well as Fast Ethernet and GbE on the front over RJ45 or M12 connectors.

MicroTCA Products

MicroTCA uses serial connections on the backplane and allows to provide multiple interconnections with GbE, and 10 GbE speed. Matching switches also contain the management functions (MCH), as well as PCIe or SerialRapidIO fabric switches. Multicore packet processors are available on AMC form factor.

ATCA Products

ATCA provides the highest fabric speeds at 1 GbE, 10 GbE, and 40 GbE. The matching switches provide carrier grade feature sets. Multicore packet processors are available on AMC form factor and on ATCA blades.

Customized Solutions

Standard products can be modified according to specific customer needs. Kontron provides assistance to customers with their individual designs with customized solutions based on well proven hard- and software building blocks.

Starter Kits

Systems and starter kits are available for evaluation and functional prototypes. To speed up customer projects, Kontron provides training on network products.

VITA Open Standards, Open Markets

VPX

AdvancedTCA®

µTCA®

Software and Hardware Features

Software Features

Switching Standard Features	Switching/QoS:	Switching protocols and functions including Ethernet Multicast (GVRP, GARP, RSTP, LAG, IGMP Snooping, DiffServ, ACL...), Synchronous Ethernet, Network synchronization (IEEE1588 precision time protocol)
	IPv4 Routing	IPv4 unicast forwarding protocols and fucntions (ARP, OSPF, VRRP, RIP...)
	IP Multicast	IP multicast forwarding protocols and functions (PIM-DM, PIM-SM, DVMRP, IGMP ...)
	IPv6 Routing	IPv6 unicast forwarding protocols and functions (discovery, OSPFv3, MLD, 6to4/4to6 tunneling)
	Metro Ethernet (planned)	CPE (customer premises equipment) oriented Metro Ethernet functions and protocols (EFM-OAM, Provider Bridges, TR-069, L2PT)
	WLAN (planned)	Access point/concentrator functions and protocols (Dynamic Channel and Power Control, Roaming...)
	Stacking (planned)	Stacking of multiple switches (Single IP address management, code/configuration distribution, redundant management units)
Kontron Feature Extensions	Enhanced Multicast support	Fully meshed Layer 2 multicast networks with IGMP snooping; Interoperability of RSTP with IGMP snooping; PIM-DM enhancements for multicast on LAGs
	Layer 2 same port bridging	Supports fast switching between virtual machines in multi-core environments
	IPinIP tunneling	Provides transparent interconnections between multiple sites and resilient network configurations in combination with heartbeat/link supervision.
	Hardware Monitoring of local and remote blades	Generate SNMP traps using Kontron MIB from IPMI based system events and event logs.
	Enhanced provisioning & configuration options	Full Linux startup configurability allows easy integration of custom scripts. Full access to all configurations and files via SNMP. Standard Wind River Linux BSP layering and practices. Autoconfiguration based on slot/system address.
	TFTP file server	Provides file services, e.g. for boot images.
	Telecom clocking	Provides full configurability of telecom clocking infrastructure on ATCA carriers through CLI and SNMP; Includes notification on changing clocks.
	Wind River Hypervisor	Supported on multi-core switch controllers.
Options for Enhancement	Standard Ethernet Ring Redundancy Protocols	To support redundant configurations for applications in Transportation, Communication and Industrial.
	Standard Ethernet Line Protection (EAPS)	Enhanced resilience by fail-over support for 1+1 redundancy operation (similiar to SONET/SDH redundancy schemes).
	Lossless Ethernet / Priority Flow Control	Enhanced real-time capabilities by a priority based flow-control (aware traffic classes) based on new IEEE 802.1Qbb standard.
Management	Command Line Interface (CLI)	The CLI provides access to management function in board or system. Access is provided via Telnet, SSH or serial port.
	Web Interface	Easy configurability for first-time users. Implements all standard options including VLAN, update, routing. Can be disabled for protection.
	SNMP	Access to shelf and board information for remote administration.
	Extensions	Access control lists, monitoring, provisioning, control API, diagnostics, reliable field upgrades, location based DHCP server, file services, watchdog, real time clock.
	IPMI	Monitor supply voltages, currents and temperatures; IPMI transaction monitoring/debugging features
Firewall Features	VPN	SSL-based OpenVPN; Site to Site VPN (IPSec); Remote VPN (PPTP, L2TP, IPSec); DES, 3DES, AES Encryption
	High-Availability	VRRP; IPSec VPN Clustering; Protocol fault isolation
	Security	Stateful inspection firewall; Network address translation; MD5 and SHA-1 Authentication; Intrusion Prevention; URL Filtering
Packet Processing		Customer specific feature sets incl. protocol stacks for multi-cores processors, e.g. load balancing, SSL off-load, deep packet inspection, virus scanner, intrusion detection. Can be arranged on request in cooperation with software partners.

Hardware Features

Switches	Non blocking, wire speed processing, managed, speeds FE, GbE, 10 GbE, 40 GbE (Broadcom)
Switch Controllers	Single-core and dual-core PowerPC architecture (AMCC, Freescale)
Routers and Packet Processors	Intel architecture and MIPS architecture multi-core processors (Intel, Cavium)
Interfaces	SFP, SFP+, RJ45, M12, customized Front- and Rear-Transition Modules to meet specific environmental conditions
Protection and operational support	Write protection for non volatile memories; on-board sensors to monitor temperatures at reference points, FWUM (firmware update manger) for field upgrades, rollbacks and watchdog functions; JTAG boundary scan testing according to IEEE1149.1
Casing and power supply	According to specific environmental conditions, choice of standard platforms and customized solutions

Processor and Software Technology under one Roof

kontron

HW & SW Integration and Customization

Strata XGS

Enterprise Class Family

Switches

BROADCOM.

WIND RIVER

freescale Enabled

applied micro

intel Embedded Alliance Premier

Routers & Packet Processing

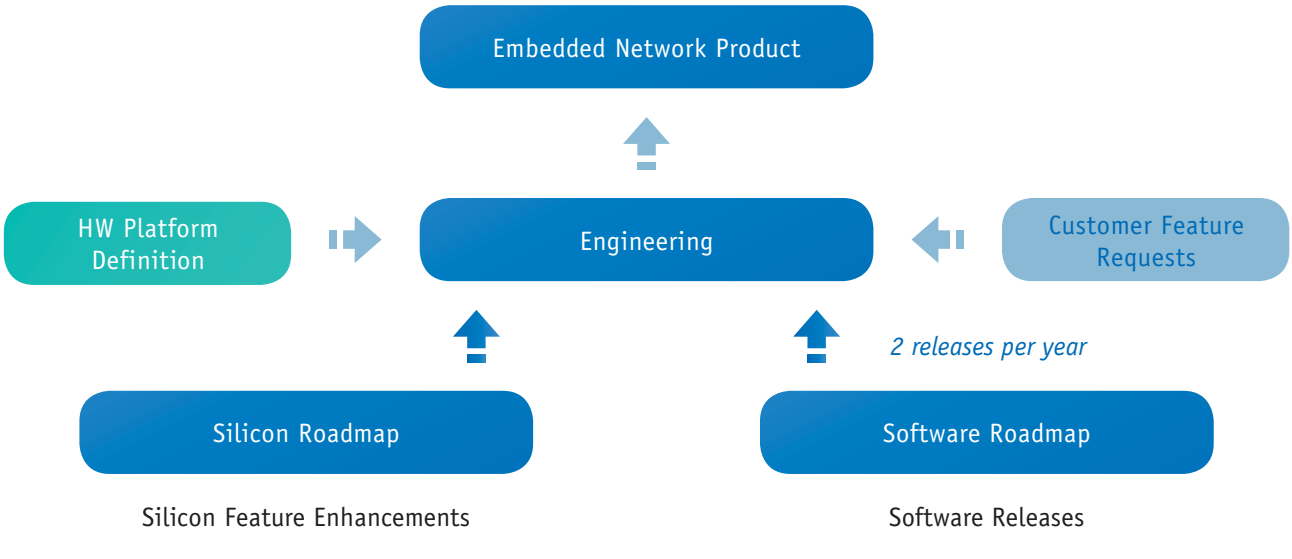
CAVIUM NETWORKS

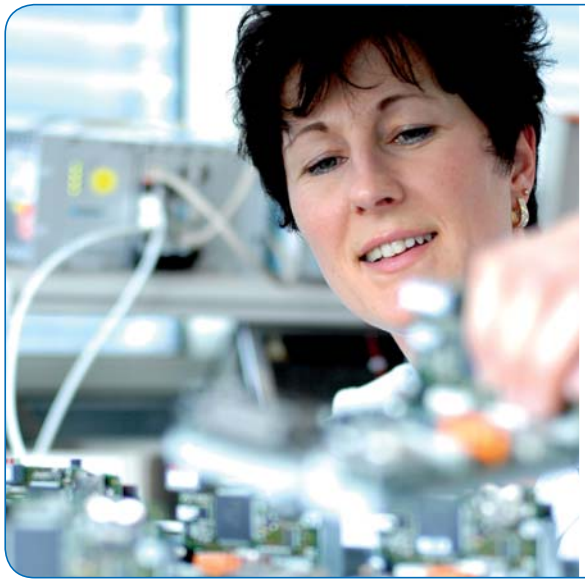
Leading Edge Components

Kontron switching products are based on the Broadcom Strata XGS line of switches in combination with the Braodcom LVL7 switch management software, which is running on WindRiver Linux. As switch controllers, PowerPC processors from Freescale and AMCC are used. For routers and packet processors, Kontron benefits from its deep technical expertise with Intel embedded multi-core processors, as well as Cavium OCTEON® multi-core processors.

Embedded Network Products

Kontron engineers with deep experience in embedded design and network technologies align the right hardware components with the right software feature sets for products in any standard embedded form factor or customized design. Software features are based on the feature sets on the roadmap plus Kontron specific extensions to provide ease-of use and the best choice for our customers.





Leading Edge Products

- » Board Level to Box Level
- » Carrier Grade Feature Set
- » Easy to use
- » Rugged Environments
- » Customized Designs

Support Services

- » Evaluation Systems & starter kits for fast verification and evaluation
- » Certification support for industry specific regulatory approvals
- » Development of customized solutions based on proven building blocks
- » Training

About Kontron

Kontron designs and manufactures standards-based and custom embedded and communications solutions for OEMs, systems integrators, and application providers in a variety of markets. Kontron engineering and manufacturing facilities, located throughout Europe, Americas, and Asia-Pacific, work together with streamlined global sales and support services to help customers reduce their time-to-market and gain a competitive advantage. Kontron's diverse product portfolio includes: boards and mezzanines, Computer-on-Modules, HMIs and displays, systems, and custom capabilities.

Kontron is a Premier member of the Intel® Embedded Alliance.

For half-a-decade now, Kontron has been named a VDC *Platinum Embedded Board Vendor*. Based entirely on user feedback, industry professionals evaluate vendors on over 45 non-product related criteria. Kontron is only one of two companies to receive the Platinum award 5-years running.

Kontron is listed on the German TecDAX stock exchange under the symbol „KBC".

For more information, please visit: **www.kontron.com**

CORPORATE OFFICES

Europe, Middle East & Africa
Oskar-von-Miller-Str. 1
85386 Eching/Munich
Germany
Tel.: +49 (0)8165/ 77 777
Fax: +49 (0)8165/ 77 385
info@kontron.com

North America
14118 Stowe Drive
Poway, CA 92064-7147
USA
Tel.: +1 888 294 4558
Fax: +1 858 677 0898
info@us.kontron.com

Asia Pacific
17 Building,Block #1,ABP.
188 Southern West 4th Ring Road
Beijing 100070, P.R.China
Tel.: + 86 10 63751188
Fax: + 86 10 83682438
info@kontron.cn

Copyright © 2003-2009 Kontron AG All rights reserved. No part of this document may be reproduced, transmitted, transcribed, stored in a retrieval system, or translated into any language or computer language, in any form or by any means (electronic, mechanical, photocopying, recording, or otherwise), without the express written permission of Kontron Embedded Modules GmbH. DIMM-PC®, PISA®, ETX®, ETXexpress®, microTXexpress®, X-board® are trademarks or registered trademarks of Kontron Embedded Modules GmbH. All data is for information purposes only and not guaranteed for legal purposes. Information has been carefully checked and is believed to be accurate; however, no responsibility is assumed for inaccuracies. Kontron and the Kontron logo are registered trademarks of Kontron AG. All other brand or product names are trademarks or registered trademarks of their respective owners and are recognized. Cover Image - Fotolia/Vitaliy Pakhnyushchyy **Network Technology-100608-WHI**