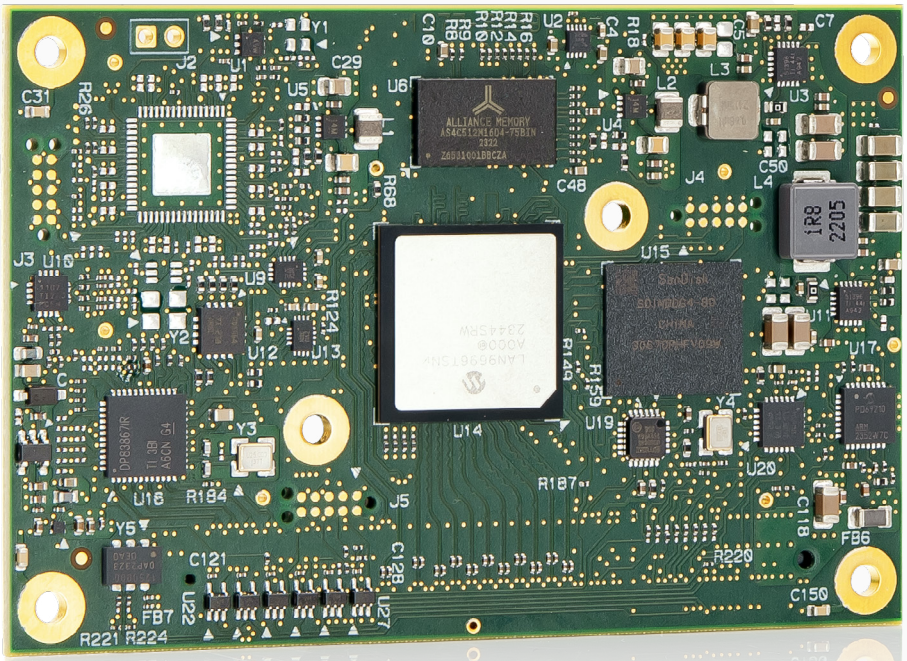
KSwitch M20

Embedded Ethernet Switch Module



1/2.5/5/10 Gigabit Ethernet Switch Module Series featured with Precision Time Protocol

- Managed Time Sensitive Networking (TSN) Ethernet Switch
- 44Gbps to 100Gbps scalable bandwidth
- Flexible port configuration via 10x 10G SerDes, up to 28 ports
- Industrial grade, highly reliable and long-term available
- IEEE1588v2 and PoE PSE support

kontron
The Power of IoT

Product Highlights

KSwitch M20

The Kontron KSwitch M20 is a modular non blocking fully managed L2/L3 1/2.5/5/10 Gigabit Ethernet Switch module with Precision Time Protocol that provides a rich and versatile feature set to integrate Ethernet switching functions on custom base board designs.
Whatever you need to integrate, the KSwitch M20 is the ideal fit for all kinds of high performance Ethernet switching, either in military, avionics or industrial applications. The IEEE1588v2 features enable precise timing synchronization and packet time stamping for time sensitive applications.
It also supports intelligent Power Over Ethernet devices by built in firmware.

Bandwidth

The KSwitch M20 is designed for future oriented applications requiring out-standing bandwidth and communication safety. The 10 10Gbps SerDes interfaces allows flexible implementation of various physical interfaces and speeds which is an intrinsic value for today's investments. The default port configuration allows
6x QSGMII (24x 10/100/1000BASE-T) and
4x 10G-USXGMII (4x 1/2.5/5G/10GBASE-T)
with external PHYs.
On project request, support for up to 28 x 1Gb/s ports or 10x 10GBASE-T can be provided.

Reliability

The robust design including components for extended temperature range provides the basis for rugged Ethernet switching devices. A 12 V single supply voltage gives the option for a broad portfolio of power supplies.
Built-In test capabilities enable effective switch maintenance.

Management

The KSwitch M20 module can be monitored via SNMP over serial line or Ethernet. Web based management and a comprehensive commandline interface enable layer 2/3 management including full IPv6 support. Features like IP forwarding & Multicast, Routing & Switching, Quality of Service, VLANs etc. enable complex network routing.

Design In Support

Kontron offers design-in guides for KSwitch M20 customer carrier development.

Technical Information

NETWORK	DEVICE	Microchip LAN969x TSN Switch Family
	OS	Microchip iStaX
	OPERATION MODE	Store and forward, full wire-speed, non-blocking switch core. Low latency cut-through forwarding mode
	INTERFACES	Flexible port configuration via 10x 10Gpbs SerDes: - 10GBASE-KR - 10GBASE-R - 10G-USXGMII - 5GBASE-KR - 5GBASE-R - 5G-USXGMII - QSGMII - 2.5GBASE-KX - 2.5GBASE-X - 2.5G SGMII - 1000BASE-KX - 1000BASE-X - SGMII - 100BASE-FX
	PORT MAPPING	Initial Port Mapping 6x QSGMII (24x 10/100/1000BASE-T) 4x 10G-USXGMII (4x 10GBASE-T) other port maps on request
BRIDGE, VLANS, PROTOCOLS	SWITCHING	IPv4/IPv6 unicast and multicast L2 switching
	ROUTING	IPv4/IPv6 unicast and multicast L3 forwarding with RPF
	FLOW CONTROL	IEEE 802.3x (full duplex) and back-pressure (half duplex)
	MAX VLANS	4095
	VLAN TYPES	Port-based VLAN, IEEE 802.1Q tag-based VLAN
	MULTICAST PROTOCOLS	IGMPv1, IGMPv2, IGMPv3, MLDv1 MLDv2 up to 255 multicast groups IGMP snooping, querying
	NETWORK DISCOVERY	IEEE 802.1ab LLDP

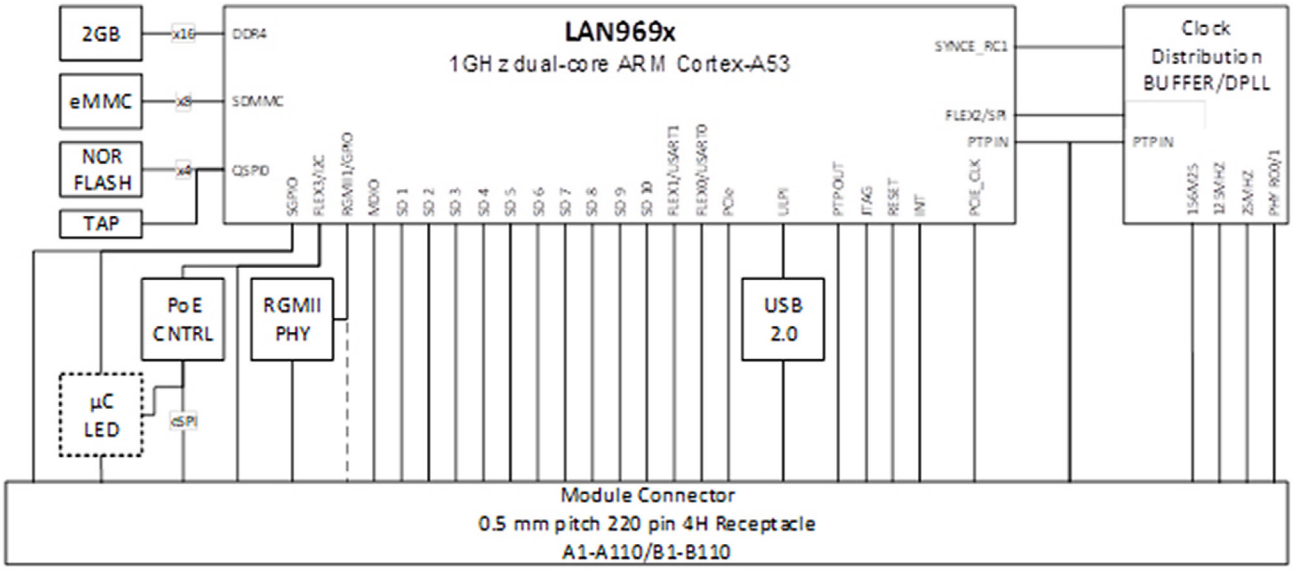
Technical Information

TRAFFIC MANAGEMENT & QOS	PRIORITY NUMBER OF QUEUES PER PORT SCHEDULING SCHEMES	IEEE 802.1p QoS 8 Strict Priority Queuing (SPQ), Deficit-Weighted Round Robin Queuing (DWRR)
TIME SENSITIVE NETWORKING	SHAPING & FILTERING REDUNDANCY / RELIABILITY FORWARDING SCHEME TIMING & SYNCHRONIZATION	IEEE 802.1Qbv-2015 Time Aware Shaping IEEE 802.1Qbu/802.3br – Frame Preemption IEEE 802.1Qav AVB traffic shaping IEEE 802.1Qci-2017 per Stream Filtering and Policing Redundancy with IEEE 802.1CB Frame Replication and Elimination for Reliability (FRER) Protection switching (line or ring) Cut-through option per TSN Stream and Store and Forward IEEE 802.1AS-2020 1-step and 2-step IEEE 1588v2 1-step and 2-step for Ordinary Clock, Boundary Clock and Transparent Clock.
NETWORK REDUNDANCY	SPANNING TREE PROTOCOL PORT TRUNK / LACP	IEEE 802.1D/1w/1S, STP/RSTP/MSTP Static trunk or LACP (Link Aggregation Control Protocol) G.8032, MRP IEC-62439-2 2016
SECURITY	PORT SECURITY STORM CONTROL	IP and MAC-based Access Control/Filter, Auth User / Privilege Level Control, IEEE802.1X Multicast / Broadcast / Flooding Storm Control / Port Access Control / Limiters
MANAGEMENT	USER MANAGEMENT INTERFACES MANAGEMENT SECURITY UPGRADE & RESTORE DIAGNOSTIC DHCP NETWORK TIME SYNCHRONIZAZION SYSTEM STATUS GREEN ETHERNET	Web-based management, Command Line Interface SNMP V1, V2c, Trap, Telnet (5 sessions) RFC 3411 SNMP Management Frameworks RFC 3414 User-based Security Model for SNMPv3 RFC 3415 View-based access Control Model for SNMP RFC 2613 SMON - PortCopy HTTPs, SSH, Access Management, Loop Protection TFTP/HTTP for Configuration Import / Export TFTP/HTTP for firmware upgrade Syslog, Level Info / Warning / Error Port Mirror, Per VLAN mirroring, CPU Load Monitor, Traffic Counter ICMP Ping Client Mode, Server Mode, Relay Mode, Snooping NTP client Device info/status; Ethernet port status Port power savings
POWER	INPUT VOLTAGE POWER CONSUMPTION	12VDC +/- 20% approx. 5W
INDICATORS	POWER STATUS ETHERNET PORT	Power Good LED Link and Speed LED Bus
ENVIRONMENTAL & COMPLIANCE	OPERATING TEMPERATURE STORAGE TEMPERATURE HUMIDITY EMC SAFETY ROHS & WEEE ALTITUDE	-40°C - +85°C -40°C - +85°C 5 - 93 % (non-condensing @40 °C) EN 55032, EN 55035, EN 61000-6-2:2005, EN 61000-6-4, FCC EN 62368-1; designed to meet UL RoHS (Pb free), REACH and WEEE compliant 3000m
MECHANICAL	DIMENSION (H X D WEIGHT INSTALLATION	85 x 55 approx. 50g Screw mount

Ordering Information

PRODUCT	ORDERING CODE	DESCRIPTION
KSWITCH M20-64	1074-2711	KSwitch M20 with 64Gb/s, TSN support
KSWITCH M20-100	1074-2710	KSwitch M20 with 100Gb/s, TSN support
HEAT SPREADER	9-5000-1163	Heat spreader for KSwitch M20 incl screws

Block Diagrams



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