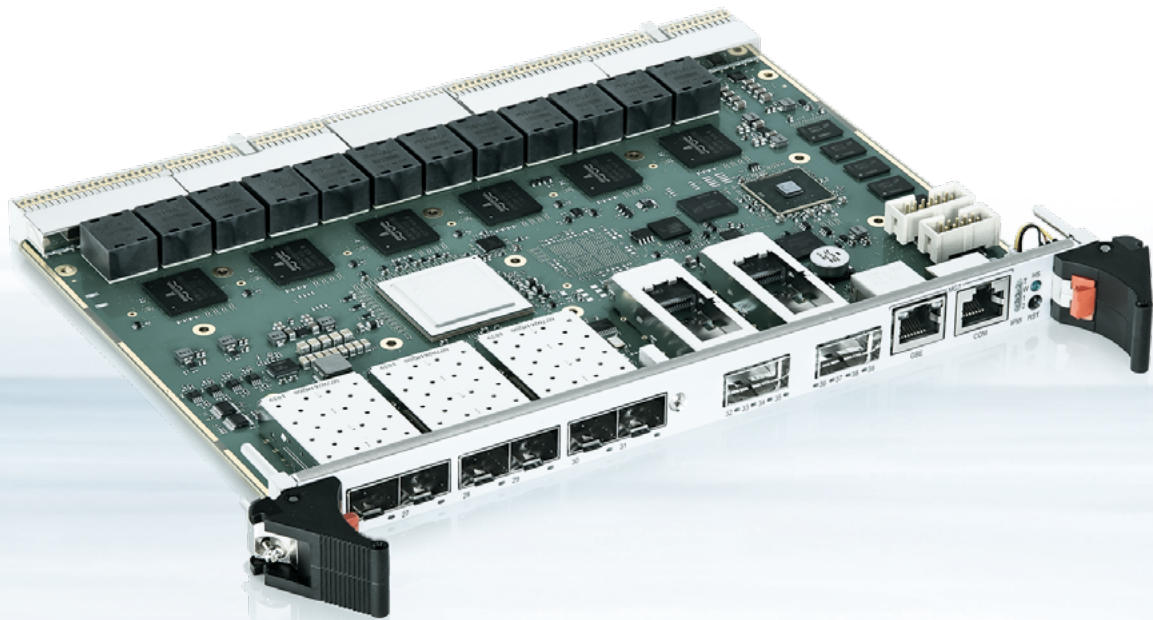# CP 6940

## Fully Managed L2&L3 Switching and Routing

▼



## CompactPCI®/VME 1/10/40 Gigabit Ethernet Switch

▶ For long term programs and harsh environments
▶ PICMG2.16 and VITA31.1
▶ QSFP+, SFP+, SFP, RJ45 uplink options
▶ L2-only value version
▶ European design and production

POSSIBILITIES START HERE  kontron
S&T Group

# CP6940
## Fully Managed L2&L3 Switching and Routing

Kontron's CP6940 is a fully managed layer 2&3 1/10/40 Gigabit Ethernet Switch series. It provides versatile feature support by using highest integration of Ethernet switch silicon. CP6940 is designed for long term programs and harsh environments, for applications requiring outstanding bandwidth and communication safety.

▶ More uplinks, higher bandwidth, improved management
▶ QSFP+ for 40G or 4x 10G
▶ SFP+ multi-rate 1/2.5/5/10GBase-x
▶ RJ45 and SFP 1G front uplinks
▶ 24x extended fabric links CPCI PICMG2.16 and VME VITA31.1
▶ 4 MByte fully integrated packet buffer
▶ Optimized for multicast traffic
▶ Robust: VITA 47 class EAC6 V2 and extended temperature
▶ Reliable: hot swap, IPMI, SNMP, built-in tests, maintenance
▶ Widely compatible with CP6924 & CP6930

### Optimized for multicast traffic
Burst absorption is the key, handling of several multicast data streams at the same time. That's where CP6940 is tailored for by its non-blocking architecture and line rate for all packet sizes; by 4 MByte fully integrated packet buffer; by the intelligent memory management unit (MMU) optimized for handling of bursty data traffic, and by dynamic memory allocation.

### Extra CPU to avoid limitations
The Kontron design is equipped with a powerful QorIQ® LS1 family processor, so that limitations are avoided which could be observed using only the switch silicon integrated CPU; in particular, performance of the management systems, response times on SNMP requests. Also, the CPU makes CP6940 prepared for future upgrades and extensions, which is important for long time available switches.

### Full L2/L3 Management
The CP6940 can be monitored via SNMP. A comprehensive command line interface provides easy management and remote configuration by either serial or network interface. Supported features are: IPv4/optionally IPv6 forwarding & multicast, routing & switching, Quality of Service, VLANs, Spanning tree (STP, RSTP, MSTP, PVST, RPVST) time synchronization using 802.1AS, access control, extended user management and many more.

### PICMG2.16 and VITA 31.1
The 24 rear ports meet the requirements of CompactPCI systems according to PICMG2.16 and of VME systems according to VITA31.1, as well.

### Reliability and Robustness
CP6940 Rugged air cooled designs are made for harsh environments and meet VITA 47 class EAC6 V2 and can operate in environments with an extended temperature range from -40 °C up to +70 °C. Hardware hot swap as well as complete SNMP management support is the basis for reliable systems. Built-In test capabilities enable effective switch maintenance.
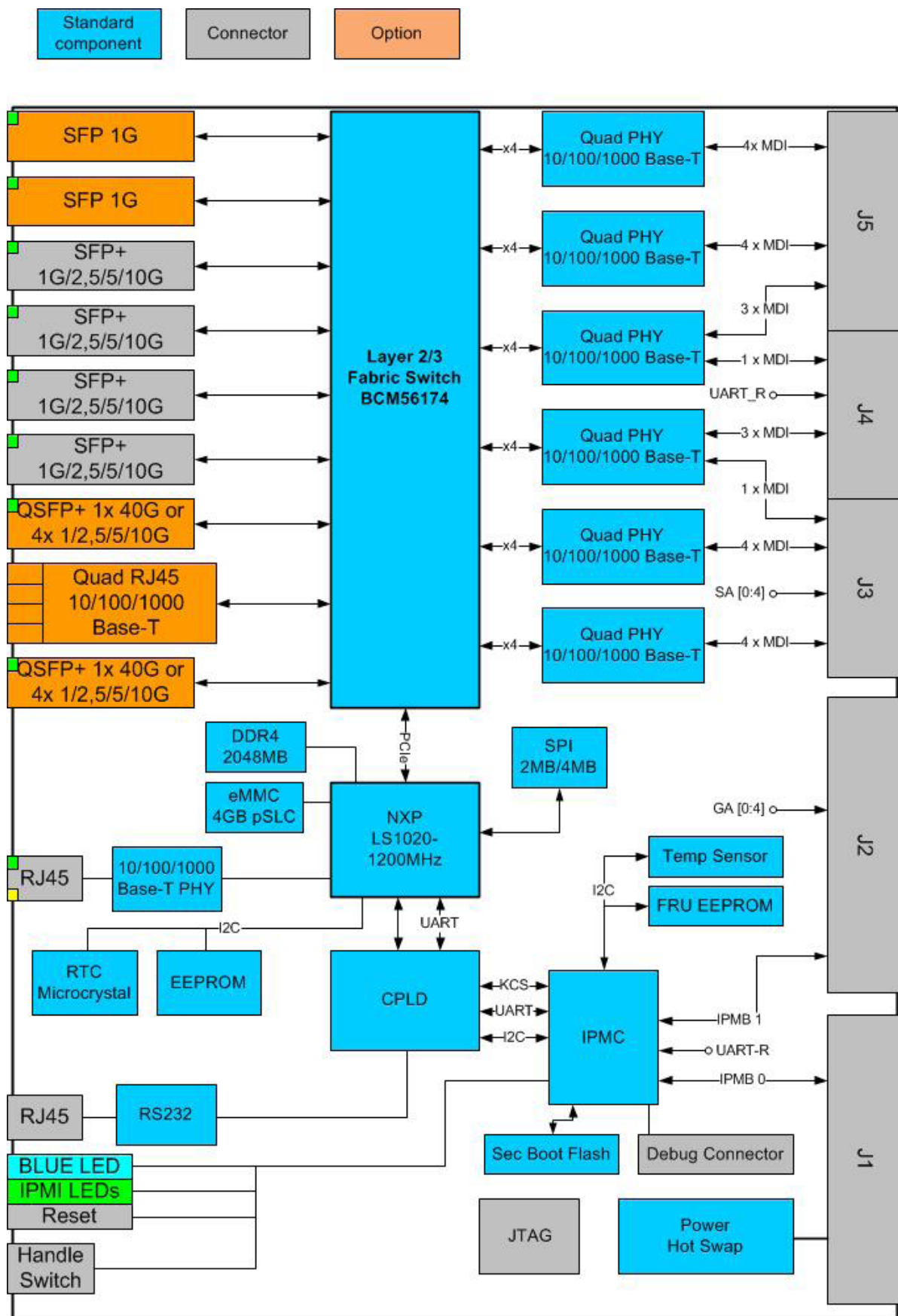
### CP6940-RA-OC, successor of CP6924
The CP6940-RA-OC rugged air cooled optical copper switch version provides four RJ45 10/100/1000BASE-T front uplinks, moreover two SFP for optical 1000Base-x or SGMII for 10/100/1000 Base-T copper modules, and four SFP+ multi-rate 1/2.5/5/10GBase-x uplinks.

### 140Gbps high performance version
CP6940-RA-OC-P is the high performance version, equipped with two QSFP+ front uplinks which provide 40GBase-xR4 or 4x 1/10GBase-x via breakout cable. Additional two SFP and four SFP+, together with the rear uplinks, add up to 140 Gbps calculated bandwidth in total. CP6940-RA-OC-P is the perfect successor for CP6930, with more uplinks and higher ruggedization.

### Cost sensitive value version
A value version of the CP6940 is tailored for cost sensitive system solutions, when average robustness and operation in a standard temperature range is sufficient. The CP6940-SA-OC-V provides layer 2 management only, four front RJ45 10/100/1000BASE-T and six SFP for optical 1000Base-x or SGMII for 10/100/ 1000Base-T copper modules. Thus, it provides more front uplinks than the previous CP6924 value version.

| | | |
|---|---|---|
| **CONTROLLER AND SWITCH** | | Broadcom BCM56174 Ethernet Switch<br>Onboard NXP QorIQ® Layerscape 1020A<br>NXP µController for IPMI |
| **INTERFACES** | **COMMON** | 24x 10/100/1000 Base-T link ports on backplane or RTM acc. PICMG2.16 / VITA31.1<br>1x 10/100Base-T for Management (RJ45 connector)<br>1x RS232 for Management (RJ45 connector and backplane)<br>Reset Switch<br>Status LEDs |
| | **OPTIONS**<br>(depending on product variants) | SGMII/1000Base-X uplinks for SFP optical transceivers<br>1/2.5/5/10GBase-X uplinks for SFP+ optical transceivers<br>10/100/1000GBase-T uplinks for RJ45<br>40GBase-X uplinks for QSFP+ or<br>alternatively 4x 1G/10GBase-X via break-out cable |
| **MANAGEMENT** | **GENERAL** | Management via SNMP, Command Line (Telnet, SSH)<br>- In-band<br>- Out of band via Ethernet or RS232<br>IPMI version 1.5, Power On Self Test<br>DHCP server, relay and Boot media supported<br>NTP server feature<br>Reliable software, field upgradable<br>Dual boot images with roll-back capabilities<br>Advanced management monitoring features |
| | **ETHERNET BRIDGING PROTOCOLS** | Including:<br>- Link aggregation (802.3ad)<br>- VLANs (802.1Q)<br>- QoS (IEEE 802.1p)<br>- Spanning tree (802.1s, 802.1d, 802.1w, PVST, RPVST)<br>- Flow control (802.3x) |
| | **ETHERNET ROUTING PROTOCOLS** | Including:<br>- Static routing<br>- VLAN/Port based routing<br>- GARP/GVRP, GMRP<br>- ARP, ICMP, OSPF, RIP, VRRP, DVMRP<br>- DHCP/Bootp relay<br>- BFD detection |
| | **ENHANCED FEATURES** | - Egress ACLs, IP ACL support<br>- Auto VoIP<br>- IGMP snooping & proxy support<br>- Startup configuration configurable<br>- Watchdog<br>- Cable test |
| **COMPLIANCE** | | CompactPCI® Core Specification PICMG 2.0 Rev. 3.0<br>CompactPCI® HotSwap Specification PICMG 2.1 R 2.0<br>CompactPCI® System Management PICMG 2.09 R 1.0<br>CompactPCI® Packet Switching Backplane PICMG 2.16 R. 1.0<br>VME64x Packet Switching Backplane VITA 31.1<br>Intelligent Platform Management Interface Specification V1.5 |
| **ENVIRONMENT** | **HUMIDITY** | 93 % RH at 40 °C, non-condensing (acc. to IEC 60068-2-78) |
| | **OPERATING TEMPERATURE** | CP6940-RA variants: -40 °C to +70 °C; CP6940-SA variants: 0 °C to +60 °C<br>(forced air cooling required) |
| | **STORAGE TEMPERATURE** | -50 °C to +100 °C |
| | **SHOCK/VIBRATION** | IEC 60068-2-6, IEC 60068-2-27, IEC 60068-2-29<br>Designed to meet VITA47, class EAC6, V2 (CP6940-RA versions) |
| | **IMMUNITY/EMISSION** | EN61000-6-2, NEBS GR-1089-CORE Issue 6, CP61000-6-3 |
| | **SAFETY** | IEC61010-1, designed to meet UL61010-1 and CSA22.2 No.950,<br>LVD 73/23/EEC, Denan Law compliant |
| **GENERAL** | **POWER CONSUMPTION** | max. 60 W |
| | **DIMENSION** | 233.5 mm x 160 mm, 6U 4HP (single slot) |
| | **WEIGHT** | approx. 800 g |
| | **MTBF** | CP6940-RA-OC and CP6940-SA-OC-V: 138,146h @ 30 °C,<br>CP6940-RA-OC-P: 140,823 h @ 30 °C,<br>based on MIL-HDBK-217 FN2, Ground Benign, Controlled |

| ARTICLE | DESCRIPTION |
|---|---|
| CP6940-RA-OC-P | Performance Rugged GbE Switch. Full L2/L3 management. Rear: 24x Ports 10/100/1000BaseTX acc. to PICMG 2.16 and VITA31.1, or Rear-I/O. Front ports: Two 1G SFP, four 1/2.5/5/10G SFP+, two 40G QSFP+, option for 4x 1G/10G each. Extended temperature range -40 °C to +70 °C. |
| CP6940-RA-OC | Rugged GbE Switch. Full L2/L3 management. Rear: 24 ports 10/100/1000BaseTX acc. to PICMG 2.16 and VITA31.1, or Rear-I/O. Front ports: Four 1/2.5/5/10G SFP+, four 1GbE RJ45. Extended temperature range -40 °C to +70 °C |
| CP6940-SA-OC-V | Value Line GbE Switch. Layer 2 management. Rear: 24x ports 10/100/1000BaseTX acc. to PICMG 2.16 and VITA31.1, or Rear-I/O. Front ports: four 1G RJ45, two 1GF SFP, two 1/2.5/5/10G SFP+. Standard temperature range 0 °C to +60 °C. |

▶ **Global Headquarters**

**Kontron S&T AG**

Lise-Meitner-Str. 3-5
86156 Augsburg, Germany
Tel.: + 49 821 4086 0
Fax: + 49 821 4086 111
info@kontron.com
www.kontron.com