

ComEth4510e

6U VPX Dual-Plane 40 Gigabit Ethernet Switch

- 6U VPX
- Managed Layer 2+/ 3 switch
- VITA 65.0 SLT6-SWH-16U16F-10.4.5
- Up to 98 ports
- 1000BASE-T, SFP+ & QSFP (front)
- 1000BASE-KX/10GBASE-KR, 40GBASE-KR4 (rear)



Overview

The **ComEth4510e** is a combined Control and Data Plane switch for demanding 6U OpenVPX Ethernet architectures.

The **ComEth4510e**'s capabilities make it a great solution to fulfill the role of the main communication switch of a 6U VPX system. It can be connected to other Interface Concept boards such as FPGA boards or Single Board Computers to build a High Performance Embedded Computer (HPEC).

Description

The **ComEth4510e** is backward compatible with the previous product generation (ComEth4510a) and adds 40G capability.

Ethernet interfaces

The Control Plane is based on the same Marvell Prestera DX Ethernet packet processor of our well-proven ComEth4050e/4070e product range. The Data Plane is based on a second generation of this Marvell Prestera DX solution which offers even higher port density and performance for demanding 10/40 GbE deployment scenarios.

Control Plane:

- on the P1 connector
 - 16 * 1GBASE-KX/10GBASE-KR ports
- on the front panel
 - 2 * SFP+ (1G/10G)
 - 1 * QSFP (40G)
 - 4 * 10M/100M/1GBASE-T (RJ45)

The **ComEth4510e** switching is controlled by a separate management processor which runs Interface Concept's field-proven switch management stack: **Switchware**. The **ComEth4510e** also implements a micro-controller dedicated to the management plan (VITA 46.11).

Data Plane:

- on the P2, P3, P4, P5 connectors
 - 64 * 1GBASE-KX/10GBASE-KR ports
- or • 16 * 40GBASE-KR4 ports
- on the front panel
 - 4 * SFP+ (1G/10G)
- or • 2 * QSFP (40G)
- or • 4 * 10M/100M/1G/2.5G/5G/10GBASE-T (RJ45)

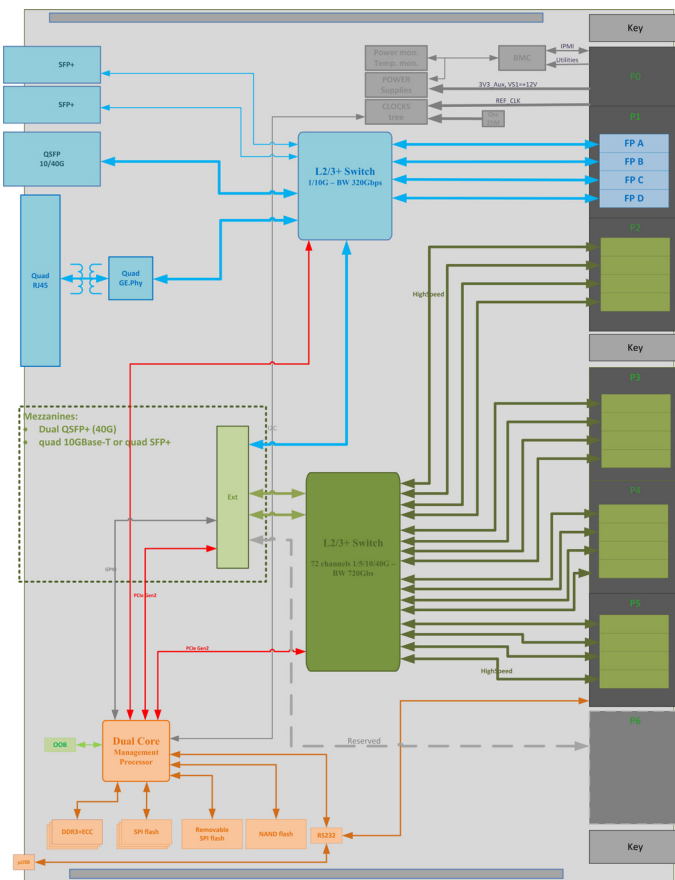
An optional VPN mezzanine can be added to the **ComEth4510e** to turn it into a high-performance secure gateway with an Interface Concept routing stack called VPNware.

The **ComEth4510e** is compliant with VITA 48.1 standard. It is available in standard, extended, rugged, air-cooled and conduction-cooled grades.

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Block Diagram



The **ComEth4510e** is compliant with VITA 65.0 SLT6-SWH-16U16F-10.4.5 slot profile.

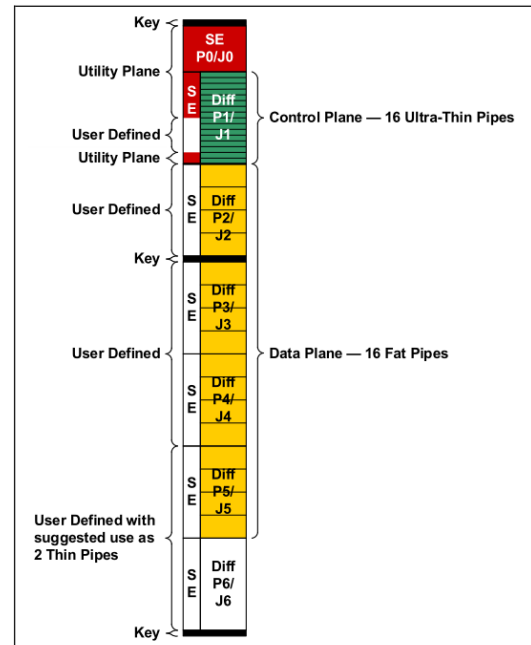


Figure 10.4.5-1 SLT6-SWH-16U16F-10.4.5

Main features

Layer 1/2

- Speed, duplex, auto-negotiation, flow control and power management on all ports
- VLAN support / 802.1Q tagging
- Port mirroring
- Port rights management
- Static MAC address list
- Static IPM address list
- Port static authentication
- IEEE 802.1X authentication
- Ingress filtering
- Storm prevention
- QoS on all ports
- Ingress / egress access lists
- Rate limiting
- QoS remarking
- Static trunking / LACP
- STP / RSTP
- Ring
- IGMP/MLD snooping

Security management

- Login/password, key or certificate authentication
- Secure switch management by HTTPS, SSH or SNMPv3
- 802.1X port-based authentication

QoS

- Layer 2 802.1p User Priority tagging
- Layer 3 IP DSCP (Diffsev)
- Access Control Lists (L2, L3, L4)

Multicast

- IGMP snooping (v1, v2, v3)
- MLD snooping (v1, v2)

Layer3

- ICMP
- Proxy-ARP
- DHCP-relay
- NAT
- IPv4 routing (unicast/multicast)
- Static IP routing (unicast and multicast)
- RIPv1, RIPv2 (IPv4)
- RIPng(IPv6)
- OSPFv2 (IPv4) / OSPFv3(IPv6)

Others

- PBIT results
- Temperature information
- CPU load
- Switch state
- Global and detailed ports statistics
- VLANs statistics
- Bridge egress, ingress and RMON statistics
- Ingress and egress access lists statistics
- Rate limiting statistics
- Queues and ingress buffers counters
- IGMP snooping state by VLAN and by port
- MAC address table access
- IPM address table access
- STP/RTSP state
- IEEE 1588-PTP

Switch Management

Switchware is a comprehensive switch management stack running on Interface Concept's Ethernet switch product line. It is running on the **ComEth4510e** on-board processor and supports a rich set of Layer 2/3 features controlled through the following interfaces:

- Graphical User Interface (GUI)
- Command Line Interface (CLI)
- SNMP (v2c or v3)

The **ComEth4510e** also supports VPX System Management in compliance with VITA 46.11 and based on the Intelligent Platform Management Interface (IPMI v1.5) for sensor management (temperature, voltage, current), inventory management, system configuration, recovery and diagnostic management.

Please consult the **Switchware** User's Manual for a comprehensive overview of all the product features.

Grades

Criterion	Coating	Operation Temperature	Rec. Airflow	Oper. HR% no cond.	Storage Temperature	Sinusoidal Vibration	Random Vibration	Shock 1/2 Sin. 11ms
Standard	Optional	0 to 55°C	1 .. 2 m/s	5 to 90%	-45 to 85°C	2G [20..2000]Hz	0.002g2 /Hz [10..2000]Hz	20G
Extended	Yes	-20 to 65°C	2 .. 3 m/s	5 to 95%	-45 to 85°C	2G [20..2000]Hz	0.002g2 /Hz [10..2000]Hz	20G
Rugged	Yes	-40 to 75°C or 85°C(*)	2 .. 5 m/s	5 to 95%	-45 to 100°C	5G [20..2000]Hz	0.05g2 /Hz [10..2000]Hz	40G
Conduction Cooled 71°C	Yes	-40 to 71°C at the thermal interface(*)		5 to 95%	-45 to 100°C	5G [20..2000]Hz	0.1g2 /Hz [10..2000]Hz	40G
Conduction Cooled 85°C	Yes	-40 to 85°C at the thermal interface(*)		5 to 95%	-45 to 100°C	5G [20..2000]Hz	0.1g2 /Hz [10..2000]Hz	40G

(*) : Temperature grades are subject to availability according to IC products. Please consult us.

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