

# ComEth4420e

## 3U VPX Dual-Plane Gen3/4 PCIe & 40 Gigabit Ethernet Switch

- 3U VPX
- Managed Layer 2+/3 switch
- VITA 65.0 SLT3-SWH-6F8U-14.4.15/6F6U-14.4.1
- Up to 11 Eth. ports and up to 12 PCIe ports
- 1GBASE-KX/10GBASE-KR/40GBASE-KR4, 1GBASE-T (rear)
- 10GBASE-T, QSFP+ (front)
- Aligned with the SOSA™ Technical Standard



## Overview

The **ComEth4420e** is a cutting-edge hybrid managed switch combining PCIe Gen3/4 and 10/40 Gbs Ethernet technologies. It has been developed in alignment with the SOSA™ (Sensor Open Systems Architecture) Technical Standard.

## Description

The **ComEth4420e** Expansion/Data Plane PCIe lanes are generated by a high-performance non-blocking switch offering Non-Transparent capability on each port.

Supporting modes such as partitioning, Upstream, Downstream and Non-Transparent port modes, the **ComEth4420e** is the ideal switch for integrators who are looking for control of rapid data flows in a centralized architecture including multiple NT endpoints.

The **ComEth4420e** Control Plane is based on the same technology as the ComEth4000e range using Marvell's highly integrated System-on-Chip (SoC) with programmable packet processors. The SoC delivers a combination of 1, 10 & 40 Gigabit Ethernet interfaces to the board.

The **ComEth4420e** is managed by **Switchware**, our field-proven network management application.

The **ComEth4420e** is compliant with the VITA 46.11 Chassis Management specification and includes an IPMI controller chip. It supports IEEE 1588 PTP (Precision Time Protocol) for precise network timing and includes protection for non-volatile memory (NVMRO).

## Interfaces

### Data Plane:

- on the P1 connector
  - 4 \* PCIe 4-lane ports Gen1/2/3/4
  - splittable into 2 \* 2-lane ports or
  - mergeable into 2 \* 8-lane or 1 \* 16-lane ports
- on the P2 connector
  - 2 \* PCIe 4-lane ports Gen1/2/3/4
  - splittable into 2 \* 2-lane ports or
  - mergeable into 1 \* 8-lane port

Various PCIe lanes' combinations and modes are available. However, they require specific configurations files to be built by Interface Concept on request. Please consult us.

### Control Plane:

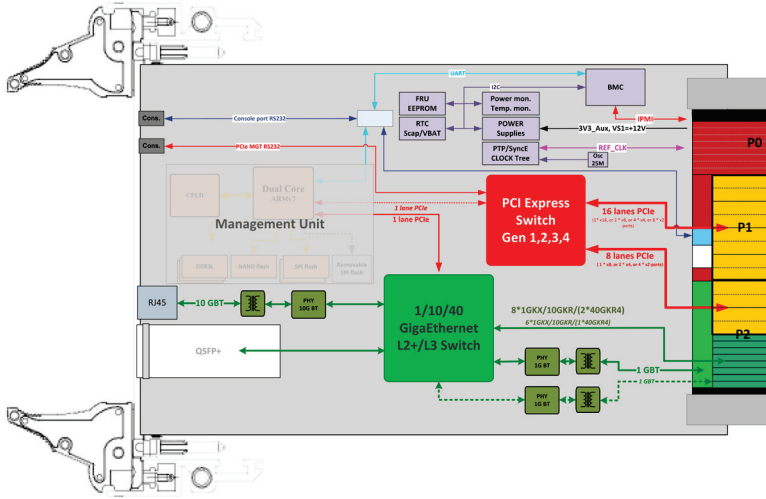
- on the P2 connector, the **ComEth4420e** is compliant with the two following profiles (factory setting):
  - VITA 65.0 SLT3-SWH-6F8U-14.4.15
    - 8 \* 1000BASE-KX/10GBASE-KR
    - 1 \* 1000BASE-T
  - VITA 65.0 SLT3-SWH-6F6U-14.4.1
    - 6 \* 1000BASE-KX/10GBASE-KR
    - 2 \* 1000BASE-T
- on the front panel
  - 1 \* QSFP+ (4 \* 10G/1 \* 40G)
  - 1 \* 10M/100M/1G/2.5G/5G/10GBASE-T (RJ45)

The **ComEth4420e** is available in air-cooled, conduction-cooled and Air-Flow-Through (AFT) versions.

# ComEth4420e

3U VPX Dual-Plane Gen3 / 4 PCIe & 40 Gigabit Ethernet Switch

## Block Diagram



The **ComEth4420e** is compliant with VITA 65.0 SLT3-SWH-6F8U-14.4.15 slot profile.

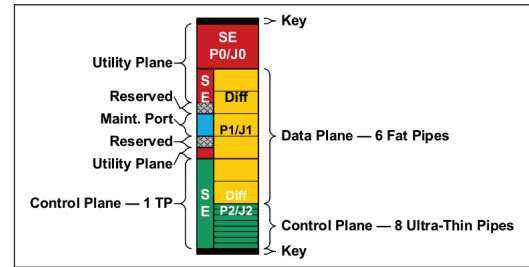


Figure 14.4.15-1 SLT3-SWH-6F8U-14.4.15

The **ComEth4420e** is compliant with VITA 65.0 SLT3-SWH-6F6U-14.4.1 slot profile.

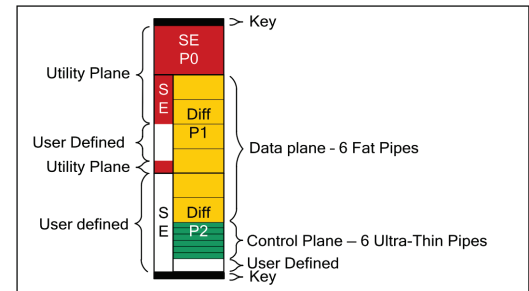


Figure 14.4.1-1 SLT3-SWH-6F6U-14.4.1

## 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
- 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)

### PCIe

- Partitioning
- Upstream mode
- Downstream mode
- Disabled mode
- Non-Transparent mode

### Others

- PBIT results
- Temperatures and voltage information
- CPU load
- Switch state
- Global and detailed ports statistics
- VLANs statistics
- Bridge egress, ingress and RMON statistics
- Ingress and egress access list statistics
- Rate limiting statistics
- Queues and ingress buffer counters
- IGMP snooping state by VLAN and by port
- MAC address table access
- IPM address table access
- STP/RTSP state
- 1588-PTP-Transparent mode



### Switch management

**Switchware** is a comprehensive switch management stack running on Interface Concept's Ethernet switch product line. It is running on the **ComEth4420e** 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 **ComEth4420e** 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.

### Rear Transition Modules



The **RTM23** is a 3U VPX Rear Transition Module to be coupled with the **ComEth4420e** Control Plane

**RTM23** features:

- 6 or 8 \* 10G SFP+ cages - P2 (CPUTP0x and CSUTP01)
- 1 \* RS232 or LVCMOS console port
- 1.60" (8HP) pitch wide according to VITA 46.0
- available in air-cooled version

### 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	0.05g2 /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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