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 14 Eth. ports and up to 12 PCIe ports*
- *1000BASE-KX/10GBASE-KR, 1000BASE-T (rear)*
- *10GBASE-T, QSFP+ (front)*
- *Aligned with the SOSA™ Technical Standard*

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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 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 P1connector

    • 4 * PCIe 4-lane ports Gen1/2/3/4 - each of them can be split into 2 * 2-lane ports or merged into 2 * 8-lane or 1 *16-lane ports.

• on the P2 connector

    • 2 * PCIe 4-lane ports Gen1/2/3/4 - each of them can be split into 2 * 2-lane ports or merged 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)

SOSA
Sensor Open Systems Architecture
Sensor Integration Simplified™

ComEth4420e
3U VPX Dual-Plane Gen3 /4 PCIe & 40 Gigabit Ethernet Switch

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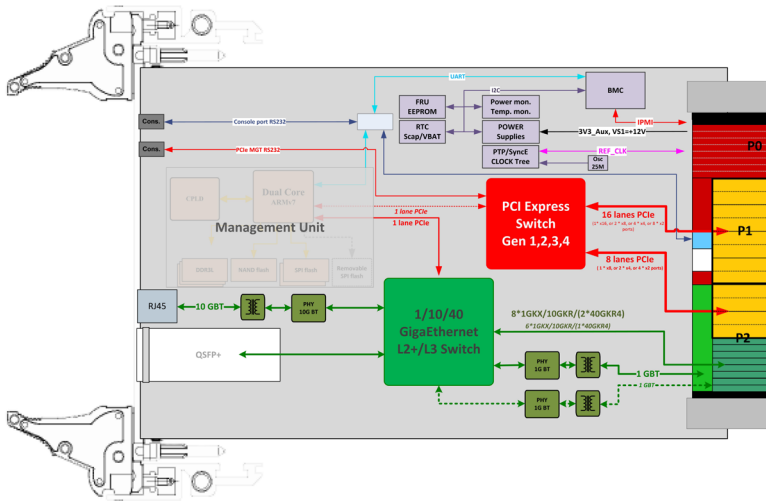
The **ComEth4420e** is compliant with VITA 65.0 SLT3-SWH-6F8U-14.4.15 slot profile.
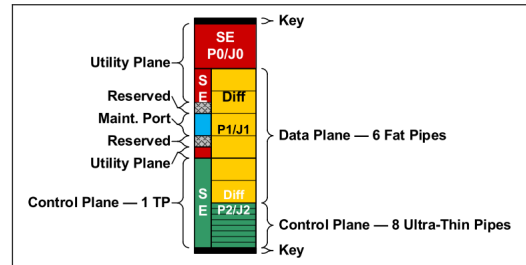

Figure 14.4.15-1 SLT3-SWH-6F8U-14.4.15

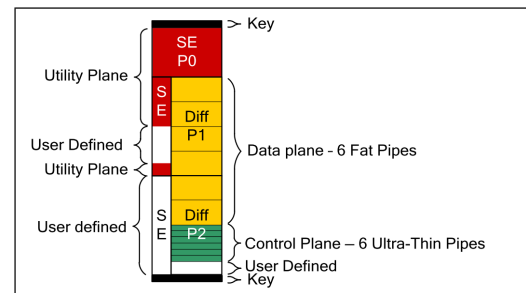The **ComEth4420e** is compliant with VITA 65.0 SLT3-SWH-6F6U-14.4.1 slot profile.

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.

SOSA™

The Sensor Open Systems Architecture (SOSA) Consortium is a voluntary, consensus-based member consortium of The Open Group, a vendor-neutral technology standards organization. The SOSA™ Consortium is a government, industry and academic alliance developing an open technical standard for sensors. The consortium, which is currently restricted to US-based companies and organizations, provides a vendor-neutral forum for members to work together to harmonize, align, and create open standards to facilitate the development of agile, interoperable, and affordable sensors.

Please contact us if you have any question about SOSA.

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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