ComEth4412a

3U VPX dual plane hybrid PCIe Gen2/3 and 1/10/40 Gigabit Ethernet Switch

- *3U VPX*
- *Managed Layer 2+/3 switch*
- *VITA 65.0 SLT3-SWH-6F8U-14.4.15*
- *Up to 12 Eth. ports and 6 PCIe ports*
- *1G/10GBASE-T, 10GBASE-KR, 40GBASE-KR4, SFP+*
- *Aligned with the SOSA™ Technical Standard*

Overview

The **ComEth4412a** is a cutting-edge hybrid managed switch combining PCIe Gen3 (8GT/s) and 10/40 Gbs Ethernet technologies. It has been developed in alignment with the SOSA™ (Sensor Open Systems Architecture) Technical Standard.

Description

The **ComEth4412a** Expansion/Data Plane PCIe lanes are generated by a high-performance non-blocking switch delivering up to 512GT/s of switching capacity, managing port bifurcating from x1 to x 14, and offering 2 Non-Transparent Bridges (NTBs/one per partition).

Supporting partitioning, upstream, downstream and non-transparent port modes (one NTB per partition), the **ComEth4412a** is the ideal switch for integrators looking for control of rapid data flows in a centralized architecture. For unlimited NT endpoints requirements, please refer to Interface Concept's **ComEth4420a** Ethernet switch product

The **ComEth4412a** Control Plane is based on same technology as in the ComEth4050e & ComEth4070e 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 **ComEth4412a** is managed by **Switchware**, our field-proven network management application.

The **ComEth4412a** 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).

This combination of features makes the **ComEth4412a** the most powerful and modular 3U fabric switch solution on the market today.

Ethernet interfaces

- **Expansion/Data Plane:**

- on the P1 and P2 connectors
    - 6 * PCIe ports Gen1/2/3 (x1, x2 or x4)
    - optional M2 modules [*]
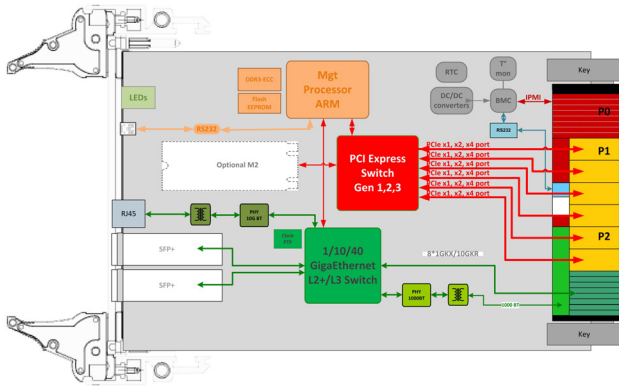
- **Control Plane:**

- on the P2 connector
    - 8 * 1000BASE-KX/10GBASE-KR (from which 4 * 10G ports can be merged in a single 40GBASE-KR4)
    - 1 * 1000BASE-T

- on the front panel
    - 2 * SFP+ (1000/10G)
    - 1 * 10M/100M/1G/2.5G/5G/10GBASE-T (RJ45)
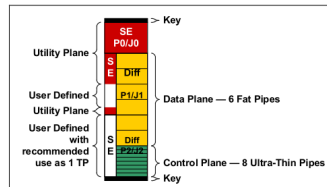
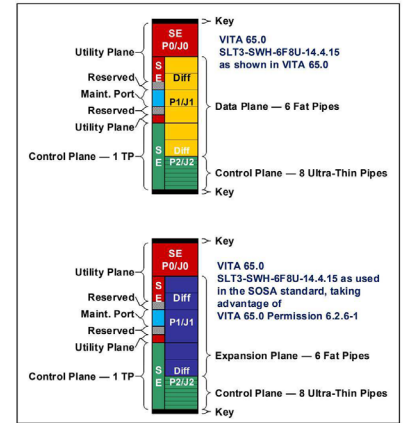[*] Contact IC for other configurations

Block Diagram

The **ComEth4412a** is compliant with both VITA 65.0 slot profiles:
- SLT3-SWH-6F8U-14.4.9
- SLT3-SWH-6F8U-14.4.15

Data/Control Plane Switch
Slot profile SLT3-SWH-6F8U-14.4.9

SLT3-SWH-6F8U-14.4.15

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 **ComEth4412a** 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 **ComEth4412a** 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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