10/100/1000 Ethernet Switch

cPCI/PICMG2.16 - VME/Vita31

4100

Provides up to 10 Ethernet ports compliant with 10/100/1000BT. One channel can be used with an optical fiber SX or LX

9 * 1000BT Conduction Cooled Version for 6U and cPCI 3U

Main layer2 bridging capabilities :
- ***Non-blocking switch with full-wire speed performance***
- ***4K MAC addresses***
- ***Automatic learning and ageing***
- ***802.1 Q support for 4K VLANs or port based VLAN,***

Flow Control : backpressure on half-duplex port and Pause-frame on full duplex port

QoS with four traffic classes :
- ***determined by port, IEEE802.1p tagged frames, IPV4's TOS & Differentiated services, IPV6's traffic class, IEEE802.1Q VID, Destination or Source MAC address***
- ***Fixed priority & programmable weighted fair queuing***

MAC authentication capabilities

Plug and Play switch :
No configuration required for basic switching.

On-line Virtual Cable Tester (Marvell VCT) with advanced cable diagnostic capabilities

Provides flexible management tools :
- ***User controllable Built-in test***
- ***SNMP, HTTP management and Telnet***
- ***Full MIB and RMON counters***
- ***Port mirroring***
- ***STP/RSTP for more reliable network communications***

LED and Thermal sensor for easy network monitoring

3U/6U-Form Factor for VME, cPCI or stand-alone integration

Description

ComEth4100 is built on the latest generation of Gigabit switch engine combined with an optional PowerPC processor for the management. The switch core contains a high-speed non blocking four traffic class QoS switch fabric.

ComEth4100 is designed specifically for embedded systems. The **ultra low-power** design and the thermal monitoring make the integration easier.

Each port is compliant with 802.3 standard. It performs all the physical layer functions for 100BT and 1000BT full or half-duplex Ethernet on CAT5 cable and 10BT full or half-duplex on CAT3,4,5. It supports Auto-MDI/MDIX.

The ComEth4100 provides the ideal solution for multi-gigabit stand-alone switches or high-density switching systems.

Auto-crossover, auto-polarity, auto-negotiation and automatic MAC address management make ComEth 4100 a true Plug&Play layer2 switch.

The Marvell Virtual Cable tester provides a remote identification of potential cable malfunctions as excessive pair skew, cable opens, impedance mismatch...

Configurable version

The unmanaged switch is "factory" configured from an on-board EPROM. However it is lightly manageable. It can be configured by a specific EPROM. As well a software running on a PC allows to configure and to control the ComETh4100. In this case the PC is connected to the switch by its parallel port. Only a part of the functionalities are available in this version of ComEth4100.

Managed version

The ComEth4100 full-managed version can be operated from a browser, PC Visual application, local console or optionally SNMP. The entire system can be easily managed and monitored. Many complementary functions are provided by this version : all the PHY and switch parameters configuration, monitoring of all statistical counters, ports monitoring, static MAC address, Multicast and VLAN control, STP/RSTP protocols, MAC based authentication for layer-2 security, extensive list of RMON counters for management in particular for SNMP.

Flexible configurations

Variants from 8 to 10 ports are available in 6U/VME, 3U&6U/cPCI Form Factors, for standard or rugged environments (conduction-cooled).
According to the model, front or rear connection versions are available.

COMETH 4100

LOW POWER 10/100/1000 Ethernet Switch

Main Features

Physical layer

8 / 9/ 10 auto-sensing 10/100/1000Mbs ports.
RJ45 connectors for front panel version or
J3/P0 connector for rear I/O version.
One optional 1000Base-FX channel (SX or LX).
On-Line Virtual cable tester for Cable diagnostic.
Compliant with IEEE802.3, IEEE802.3u & IEEE802.3x.

Layer 2 MAC

4000 MAC unicast address with automatic ageing, self-learning mechanism, Tag extraction and insertion (802.1p),
Full-wire speed performance.
Back pressure for half-duplex, IEEE802.3x for full duplex.
Auto-MDI/MDIX crossover and polarity correction.
Port mirroring.

VLAN

Full 802.1Q VLAN compliant or Port based VLAN.

Security

802.1X MAC authentication.

QoS

Four queues per port for traffic classes.
QoS determined by port, 802.1P tagged frame, Diffserv, ToS
IPV4 & IPV6 support, DA or SA MAC address
Fixed priority or weighed.
Ingress and Egress Rate Limiting for bandwidth supervision for instance the multicast and broadcast flows control.

Rear Transition module routes ports to the rear panel

Please refer to ordering information.

Switch Management

Onboard firmware are implemented with Power on Built-In Test, maintenance functions and network (BootP/DHCP) updating functions.
Management software provides a wide range of configuration functions on any port : transmission speed/mode, VLAN, STP parameters, mirroring, etc.
Supervision functions get lots of information in real time on the switch status in particular the local temperature.
MIB and RMON counters and private information are reachable from SNMP agent, HTTP web-browser via Ethernet.
This Open Application, named **SWITCHWARE,** is carried out by a PPC processor module running under LINUX. Based on a Power-Quic this card implements 32MB SDRAM, 8MB Flash EPROM and several communication ports.

Redundancy capabilities

STP IEEE 802.1d provides redundant link support.
Rapid STP capability for minimizing STP convergence.

Front panel LEDs

Power supply and Switch status
Switched ports : activity & link

System interface

5VDC or 3.3VDC Power Supply only

Power supply

8 GE port base unmanaged board Ptyp=10 watts
10 GE ports : Ptyp=12.5 watts
Management PPC function : Ptyp = 0.8 watt
cPCI model : through J1 connector (5 or 3.3 VDC)
VME model : through P1 connector (5VDC)

Standard Conformance

Emissions

EN55022 Class A

Immunity

CEI 6000-4-2 (ESD), 6000-4-3 (Electric field), 6000-4-4 (Burst), 6000-4-5 (Surge), 6000-4-6,

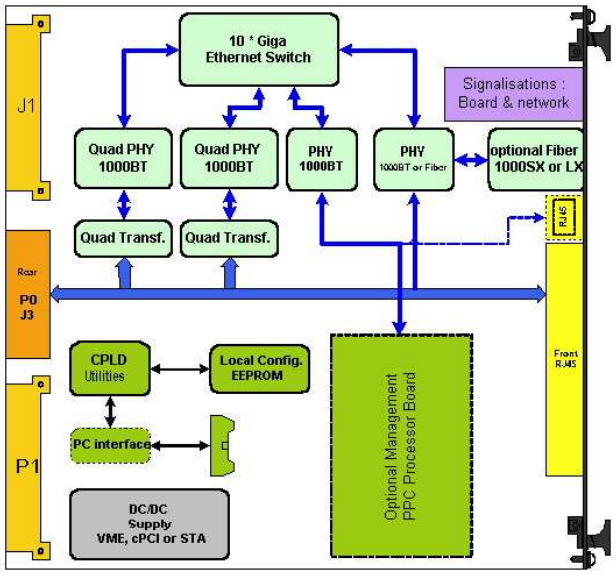
Security

EN60950

MTBF

TBD

Block diagram



Environment specifications :

Please refer to ordering information below.

Rear Transition Module :

Ref. RTM02 & RTM06

Ordering Information :

Please consult the **ComEth4100 datasheet** at **www.interfaceconcept.com** (listing all product references and environment grades availability).

This document supersedes any earlier documentation relating to the products referred to herein. The information contained in this document is current at the date of publication. It may subsequently be updated or withdrawn without notice.

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