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Find the *Interface Concept ComEth 4115* at our website: *Click HERE*

10/100/1000 Ethernet Switch

cPCI/PICMG2.16 - VME/VITA31



RoHS 2002 / 95 / EC

Description

ComEth4100 is built on the latest generation of Gigabit Ethernet 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.

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ComEth 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 MAC or Source MAC address*
- *Fixed priority & programmable weighted fair queuing*

MAC authentication compliant with IEEE802.1X

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 controlable 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

Board specifications

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

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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 PowerQuic 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)

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Standard Conformance

Emissions

EN55022 Class A

Immunity

CEI 61000-4-2 (ESD), 61000-4-3 (Electric field), 61000-4-4 (Burst), 61000-4-5 (Surge), 61000-4-6,

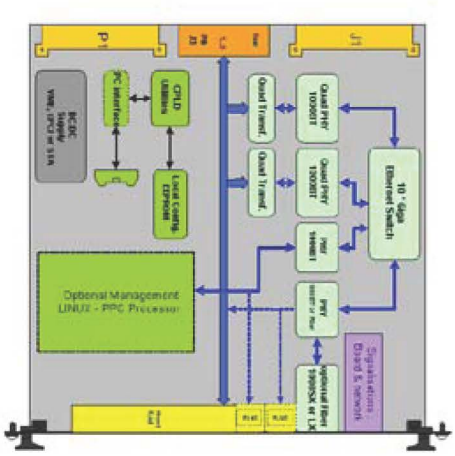
Security

EN60950

MTBF

TBD

Block diagram



Click on the block diagram to zoom in

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Ordering information

ComEth4100 - Full Gbs Ethernet switch - PICMG 2.16 - VITA 31.1 - Layer 2/3
3U & 6U/cPCI & VME
Front & rear connections

3U - no cPCI bus interface
6U - no VME & no cPCI bus interface

6U/VME or Stand-alone Front connections	FP : Front Panel RP : Rear Panel LM : LightManaged Switch FM : Full Managed Switch	

Part number	Model	Features	Grade
576-010-740	ComEth 4110	10 ports_LM : 10*10/100/1000BT (FP)	standard
576-010-760	ComEth 4110	576-010-740 in extended grade	extended
576-011-740	ComEth 4111	10 ports_LM : 9*10/100/1000BT (FP) + 1*1000 SX (FP)	standard
576-011-760	ComEth 4111	576-011-740 in extended grade	extended
576-015-740	ComEth 4115	9 ports_FM : 9*10/100/1000BT (FP)	standard
576-015-760	ComEth 4115	576-015-740 in extended grade	extended
576-016-740	ComEth 4116	9 ports_FM : 8*10/100/1000BT (FP) + 1*1000 SX (FP)	standard
576-016-760	ComEth 4116	576-016-740 in extended grade	extended

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6U/VME or Stand-alone Rear connections		**FP : Front Panel RP : Rear Panel LM : LightManaged Switch FM : Full Managed Switch**	
576-020-740	ComEth 4120	10 ports_LM : 9*10/100/1000BT (RP) 1*10/100/1000BT (FP)	standard
576-020-760	ComEth 4120	576-020-740 in extended grade	extended
576-025-740	ComEth 4125	9 ports_FM : 9*10/100/1000BT (RP)	standard
576-025-760	ComEth 4125	576-025-740 in extended grade	extended
576-025-795	ComEth 4125	576-025-740 in conduction-cooled grade	conduction cooled
6U/cPCI Front connections		**FP : Front Panel RP : Rear Panel LM : LightManaged Switch FM : Full Managed Switch**	
576-040-740	ComEth 4140	10 ports_LM : 10*10/100/1000BT (FP)	standard
576-040-760	ComEth 4140	576-040-740 in extended grade	extended
576-041-740	ComEth 4141	10 ports_LM : 9*10/100/1000BT (FP) + 1*1000 SX (FP)	standard
576-041-760	ComEth 4141	576-041-740 in extended grade	extended
576-045-740	ComEth 4145	9 ports_FM : 9*10/100/1000BT (FP)	standard
576-045-760	ComEth 4145	576-045-740 in extended grade	extended
576-046-740	ComEth 4146	9 ports_FM : 8*10/100/1000BT (FP) + 1*1000 SX (FP)	standard
576-046-760	ComEth 4146	576-046-740 in extended grade	extended
6U/cPCI Rear connections (J3)		**FP : Front Panel RP : Rear Panel LM : LightManaged Switch FM : Full Managed Switch**	
576-050-740	ComEth 4150	10 ports_LM : 9*10/100/1000BT (RP) 1*10/100/1000BT (FP)	standard
576-050-760	ComEth 4150	576-050-740 in extended grade	extended
576-055-740	ComEth 4155	9 ports_FM : 9*10/100/1000BT (RP)	standard
576-055-760	ComEth 4155	576-055-740 in extended grade	extended
576-055-795	ComEth 4155	576- 055- 740 in conduction-cooled grade	conduction cooled
3U/cPCI Rear connections (J2)		**FP : Front Panel RP : Rear Panel LM : LightManaged Switch FM : Full Managed Switch**	
576-065-740	ComEth 4165	9 ports_FM : 9*10/100/1000BT (RP)	standard
576-065-760	ComEth 4165	576-065-740 in extended grade	extended
576-065-795	ComEth 4165	576-065-740 in conduction-cooled grade	conduction cooled
Option			
576_SNMP	ComEth 4100_SNMP	One-time fee licence (per project). This option includes a 6-month support from PO	
Rear Tansition Module for ComEth4100_cPCI & VME models			
VME&cPCI 6U boards			
900-230-740	RTM02_1K_9	9 ports : 9*RJ45(10/100/1000Mbs) - 4TE - No EMI protections (P0/J3)	standard
900-232-760	RTM02_1K_9	9 ports : 9*RJ45(10/100/1000Mbs) - 4TE - EMI protections (P0/J3)	extended
cPCI-3U boards			
900-234-740	RTM06_1K_9	9 ports : 9*RJ45(10/100/1000Mbs) - 8TE - No EMI protections (J2)	standard
900-236-760	RTM06_1K_9	9 ports : 9*RJ45(10/100/1000Mbs) - 8TE - EMI protections (J2)	extended

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