

R-828 TetraNode Industrial

General Description

The TetraNode TetraNode Industrial platform is based on the CompactPCI® standard for highly reliable and ruggedized system solutions.

CompactPCI® is a industrial-grade computer hardware standard published by the PCI Industrial Computers Manufacturers Group (PICMG) who also authored the new AdvancedTCA® standard.

TetraNode Industrial is intended for customers with requirements for high availability and moderate performance (traffic loads) on the main switch i.e. switches. It is also suitable to aggregate up to four TetraNode eXchanges on a single location for customers who prefer a big-switch approach.

Typical users of TetraNode Industrial include operators of regional network and agencies requiring fast deployable systems.

Technical Overview

TetraNode Industrial provides a modular platform for building system solutions which a wide variety of interfaces and gateways. Compatible CompactPCI® cards include:

TetraNode eXchange (TNX-I). One or more TNX blades can be installed in the chassis to provide softswitch capacity for serving base stations and gateways for telephony and dispatch. The dual-core CPU technology of TNX blades offers capacity for up to 24 sites with a maximum switching capacity of 256 channels per TNX blade (64 TETRA carriers if exclusively used for TETRA base stations).

E1 Telephony Interface (ETI). The ETI allows interconnection to a PABX or PSTN using the QSIG or ISDN-PRI standard with a capacity of at maximum 30 simultaneous voice conversations per ETI.

Voice-data Logging Server (VLS). The VLS allows recording of all voice, data and GPS locations within the network, providing unmatched performance and functionality in a very small form factor, which is ideally suited for fast deployable networks.

TetraNode Multi-purpose Interface (TMI). The TMI allows local integration of low-density telephony and base station gateways, for example to interconnect analog base stations or ISDN-BRI type PABXs.

Note that all listed CompactPCI® cards are optional, thus needed only if the functionality or expansion is required within the solution.

Most of the listed CompactPCI® cards are based on Commercial Off The Shelf (COTS) technology, offering a future proof system solution for which migration to future technologies is well supported.



TetraNode Industrial chassis offers a capacity of four slots. These slots can be used to fit any of the listed cards, providing that the maximum capacity of the power supplies and maximum heat dissipation of the selected CompactPCI® chassis is not exceeded.

TetraNode Industrial fully supports the multi-node paradigm for expanding capacity beyond the limits of a single TNX softswitch, offering sufficient capacity for large regional or countrywide networks using distributed switching.

Hotswap is supported by all CompactPCI cards in order to minimize downtime due to service and maintenance. A range of power supplies is available for all common AC and DC power sources.

Key Features

- Industrial strength platform for building fully featured, compact TETRA networks
- Software functionality identical to other platforms
- Each TNX blade offers capacity for up to 64 TETRA carriers across 24 sites
- All components operate with hot-swap capability
- Easy to integrate with both synchronous as well as full IP backbones

Redundancy can be achieved through synchronous links using the TetraNode Streaming Protocol (TNSP), using a full IP backbone, or even a combination of both synchronous and IP links.

Geographic redundancy is possible by installing the main and redundant CompactPCI® chassis on different locations. In addition, five-9's (99.999%) availability can be achieved by using an IP backbone with redundant paths in between the TNXs and base station sites.

Systems Extension and additional features

Beside the TNX-I sub system and power supply systems the 32U enclosure can also house the following servers/applications :

- R-809 Authentication and Key management Server
- R-816 Voice logging Server
- R-817 Dispatcher server
- R-818 Coverageguard Server
- R-819 CoveragePlot Server
- R-820 TEP rack functions
 - S-895
 - S-896
 - S-838
 - S-833
 - S-835
 - S-839
- R-880 SIP telephone Interface
- R-1800 I/O interface
- R-1810 Site power controller
- R-1820 Light Stack

Licenses for :

- L-1100 Conference Bridge
- L-222 Radio User Assignment
- L-962 TetraNode Packet Data Gateway



Mechanical of the TNX sub system

Dimensions, W x H x D 483 x 88 x 303 mm
Weight 6 Kg, w/o power supplies

System capacity TNX-I sub system

Chassis capacity of four slots
One system slot, up to three peripheral slots
Backplane with 33 MHz, 64 bit PCI bus

System Compliance

Compliant with the following specifications:
CompactPCI® Specification, PICMG® 2.0, R3.0
CompactPCI® Hot Swap Specification, PICMG® 2.1, R2.0

Environment

Operating temperature 0 °C to 50 °C
Storage temperature -40 to + 85 °C
Humidity 30 % to 80 %, non-condensing

Power supply, AC version

Input voltage 90 to 250 V_{AC}
Frequency 50 / 60 Hz
Output power 250 W

Power supply, 48 V_{DC} version

Input voltage 36 to 75 V_{DC}
Output power 250 W

Power supply, 24 V_{DC} version

Input voltage 18 to 36 V_{DC}
Output power 250 W

Ordering specifications

Deliverable system

- R-828 TetraNode Industrial (TNX- I)
 - S-865 cPCI processor board
 - S-800 cPCI Rack
 - S1010 TNX License / release
 - S-110 Industrial IP Switch

Features / Add-on

- R-828-R Redundant Processor board in same enclosure as Main TNX-I
 - S-865 cPCI processor board
 - S1010 TNX License / release
- R-828-GR Geo-Redundant TNX-I in Physically separated enclosure from Main TNX-I
 - S-865 cPCI processor board
 - S-800 cPCI Rack
 - S1010 TNX License / release
 - S-110 Industrial IP Switch

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TetraNode Mission Critical Communications