



WHITE RABBIT ZEN TIME PROVIDER

WR-ZEN TP

WR-ZE_TPは、冗長接続を活用する幅広いアプリケーションに White Rabbit機能を提供する、汎用性の高いスタンドアロンノードです。

WR-ZEN_TPは、PTP、NTP、NMEA、IRIG-B、ToDなどの標準タイミングプロトコルを実装することにより、時刻と周波数を他の機器に簡単に配信します。

WR-ZEN_TPは、超安定クロックと低ジッターおよび温度補償クロックリソースを組み合わせ、同期精度を高めます。FMCカードをインストール可能となっています。



Technical Specifications / WR-ZEN TP

System On-Chip

SoC	Xilinx Zynq series
CPU	Dual ARM® Cortex™-A9 MP@ 866MHz
Memory	<ul style="list-style-type: none"> 512 MB DDR3 (32-bit bus) 256 Mbits Quad-SPI Flash 16GB SD Card

Software

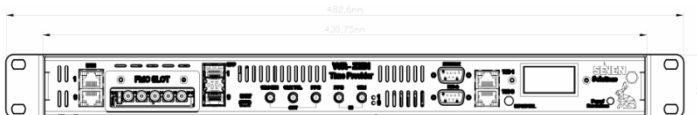
OS	Linux (Kernel v4.6)
Time Sync.	<ul style="list-style-type: none"> White Rabbit PTPv2 (default and G.8265.1 profiles, up to 16 unicast clients) NTP (client & server) NMEA, ToD (I/O) IRIG-B (only output)
Protocols	TCP/IP, SSH, SNMPv3, TFTP, DHCP, ARP, DNS, HTTP (web interface)

Front Panel

Ethernet	2x 10/100/1000 Base-T RJ45 (Management, PTP, NTP)
FMC	1x Low-Pin count FMC slot (LPC) <ul style="list-style-type: none"> Using HPC-FMC footprint to support extra GTP channel/clock on board
SFP Ports	2x 1GbE
Timing	Common outputs to provide Timing <ul style="list-style-type: none"> 2xRJ45, ToD (NMEA) RS485 1xDB9, ToD (NMEA) RS232 1xDB9, 8x configurable* PPS/CLK <i>*PPS/CLK outputs are divided in two groups of 4 customized PPS/CLK (1, 10, 1k-10M)Hz similar to the SMA Aux Clk.</i>
Debug	USB Mini-B (ARM-UART)

Back Panel Modules

FAN	2x (1-4) Hot swappable fan modules
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HIGHLIGHTS

- ✓ Sub-nanosecond time accuracy
- ✓ Remote configuration and monitoring
- ✓ Distance range over 80 km using fiber
- ✓ Xilinx Zynq Family (ARM Dual Core)
- ✓ Linux OS
- ✓ WR and PTPv2
- ✓ Robustness & Redundancy
- ✓ FMC expansion

Clock Performance

Phase noise (dBc/Hz)		Master	GM	Slave
	1Hz	-78.7	-86.2	-76.5
	10Hz	-107.5	-87.6	-79.7
	100Hz	-132.6	-107.2	-112.4
	1kHz	-143.5	-140.8	-143.6
	10kHz	-147.5	-143.0	-145.3
	100kHz	-145.6	-146.0	-149.1
TDev				
	▪ @1 sec	1.92E-11		
	▪ @ 10 sec	1.93E-12		
	▪ @ 100 sec	1.94E-13		
	▪ @ 1000 sec	1.98E-14		

Physical Specification

Dimension	431 mm x 44 mm x 330 mm
Color	White (Metallic)

Certification

Soldering	IPC-A-610 Rev E Class 2
Others	ISO-9001, ISO-14001, ROHS, FCC, CE,SE

Power Supply

Input	Redundant 2x 100-240VAC, 50-60 Hz
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Environmental Conditions

Temperature	-10°C ~ +50°C
Humidity	0% ~ 90% RH

