



## WHITE RABBIT ZEN TIME PROVIDER

### WR-ZEN TP-32BNC

White\_Rabbit時刻転送とその冗長接続により、ラックキャビネット内のすべての機器に複数のレガシー10MHz/xPPSタイミング出力を提供する信頼性の高いノード。

WR-ZEN\_TP-32BNCは、PTP、NTP、10MHz/xPPS、IRIG-Bなどの標準的な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分配します。

WR-ZEN\_TP-32BNCは、低ジッターの超安定クロックと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。



# Technical Specifications / WR-ZEN TP-32BNC

## System On-Chip

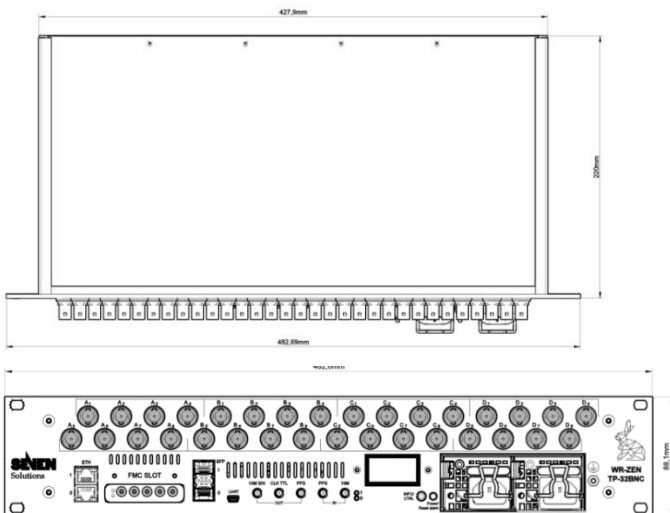
<b>SoC</b>	Xilinx Zynq series
<b>CPU</b>	Dual ARM® Cortex™-A9 MP@ 866MHz
<b>Memories</b>	<ul style="list-style-type: none"> <li>512 MB DDR3 (32-bit bus)</li> <li>256 Mbits Quad-SPI Flash</li> <li>16GB SD Card</li> </ul>

## Software

<b>OS</b>	Linux (Kernel v4.6)
<b>Time Sync.</b>	White Rabbit PTPv2 (default and G.8265.1 profiles, up to 16 unicast clients) NTP (client & server)
<b>Protocols</b>	TCP/IP, SSH, SNMPv3, TFTP, DHCP, ARP, DNS, HTTP (web interface)

## Front Panel

<b>Ethernet</b>	2x 10/100/1000 Base-T RJ45 (Management, PTP, NTP)
<b>SFP Ports</b>	2x 1GbE
<b>Fanout</b>	32 BNC configurable outputs divided in 2 groups (1.7V/50Ω): <ul style="list-style-type: none"> <li>A&amp;B: 10MHz (xPPS under license) with 50Ω termination</li> <li>C&amp;D: xPPS, IRIG-B with selectable 50Ω termination</li> </ul>
<b>Debug</b>	USB Mini-B (ARM-UART)



## 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
- ✓ 32 configurable timing outputs

## 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
<b>TDev</b>				
	@ 1 sec	1.92E-11		
	@ 10 sec	1.93E-12		
	@ 100 sec	1.94E-13		
	@ 1000 sec	1.98E-14		

## Physical Specification

<b>Dimension</b>	428 mm x 88 mm x 220 mm
<b>Color</b>	White (Metallic)

## Certification

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

## Power Supply

<b>Input</b>	Redundant 2x 100-240VAC, 50-60 Hz
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## Environmental Conditions

<b>Temperature</b>	-10°C ~ +50°C
<b>Humidity</b>	0% ~ 90% RH

