WHITE RABBIT Z16

It is the reliable precise time fan-out for White Rabbit distribution on 1G Ethernet-based networks.

The WR-Z16 is a standalone device with 16 SFP connectors which provides sub-nanosecond accuracy time over plug-and-play fiber links.

The WR-Z16 provides very precise IEEE 1588 (PTP) in all its optical interfaces and supports NTP interoperability. Picossecond-level frequency distribution is available through digital clock.

The WR-Z16 incorporates failover mechanisms which combine multi-source redundancy and holdover capabilities to ensure continued operation.
## Technical Specifications / WR-Z16

<table>
<thead>
<tr>
<th>System On-Chip</th>
<th>SoC: Xilinx Zynq 7000 series</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU</td>
<td>Dual ARM® A9 MP@ 1 GHz</td>
</tr>
<tr>
<td>Memory</td>
<td>512 MB DDR3 (32-bit bus)</td>
</tr>
<tr>
<td></td>
<td>16GB SD Card</td>
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</tbody>
</table>

### Timing

**Multi-sources**

Failover mechanism to ensure continuous operation by switching over several timing sources in case of failure:
- White-Rabbit (accuracy <1ns)
- External references (GNSS, AC)

**PTP**

Supported Profiles:
- Default
- G.8265.1
- G.8275.1
- IEEE C37.238-2011

**IEEE 1588-2008**

- up to 16 clients

**NTP**

- NTP v2, v3 & v4

**Holdover (optional)**

Accuracy (learning 3 days from GNSS):
- < 100ns @ 4h
- < 500ns @ 8h
- < 1.5us @ 24h

### Management

**OS**

- Linux (Kernel v4.9 & buildroot)

**Control**

- CLI & Web-GUI: HTTP(s)

**Authentication**

- RADIUS
- TACACS+

**Monitoring**

- SNMPv3 (SNMPv2) + Traps
- Smart-Alerts

**Network**

- SSHv2 (openSSH 7.8) + SFTP/SCP
- DHCP
- LLDP
- Rsyslog

### Physical Specification

**Dimension**

- 431 mm x 44 mm x 330 mm

**Color**

- White (Metallic)

**Certifications**

- ROHS, FCC, CE

### Environmental Conditions

**Temperature**

- -10°C ~ +50°C

**Humidity**

- 0% ~ 90% RH

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**HIGHLIGHTS**

- Sub-nanosecond time accuracy
- 16 optical timing ports for WR/PTPv2
- Multi-source time references
- Distance range over 80 km using fiber
- Linux OS
- Datacenter Optimized design
- Failover mechanisms
- Holdover capability
- Extended monitoring and management
- Redundant hot swappable power supply & fans
- Health monitoring

### Front Panel

- UART: RS232 Serial (RJ45 connector)
- Ethernet: 2x 100/1000 Base-T RJ45
- SFP Ports: 16x 1GbE for timing distribution (WR/PTPv2 selectable)
- Clocks I/O: 4x SMA connectors (3V @500, TTL compatible):
  - 10MHz OUT (LVTTL)
  - PPS OUT (LVTTL)
  - PPS IN (LVTTL)
  - 10MHz IN (TTL/CMOS/ECL/clipped sine)

### Back Panel Modules

- Power: 2x Redundant & Hot-swappable
- Supply: 100-240VAC, 50-60 Hz
  - 50W (max. 80W)
- Fan: 2 x Swappable fan modules

Airflow: blowing out

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[1]: License not included in default package