

OSA 5400 TAP TimeCard™

Half-size PCIe card, compliant to OCP TAP specification



5G Mobile



Telecom



Defense



Data center



Smart grid



Transportation



Financial



Broadcast

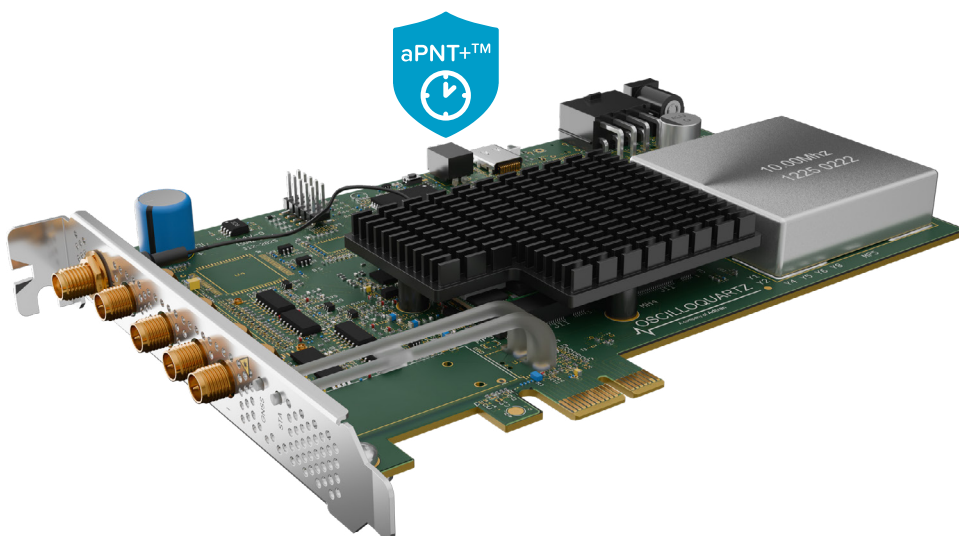
Benefits

- **Standard PCIe card**
Half-length, standard-height PCIe card
- **OCP-TAP compliant**
Compliant with OCP-TAP specification for seamless integration and interoperability
- **PTM support**
Ns-level precision synchronization over PCIe bus using Precision Time Measurement
- **Sophisticated, feature-rich synchronization**
Built-in Cost-efficient multi-band GNSS receiver enabling PRTC-B and IEEE 1588v2 grandmaster (GM), boundary (BC), slave clock (SC) and NTP server functionality via standard Linux SW packages (e.g. LinuxPTP for IEEE1588 and Chrony/ntpd for NTP)
- **Resilient PNT**
Galileo OSNMA support and LEO based Iridium PNT receiver as a future optional add on for synchronization when GNSS is not available via FW upgrade.
- **Proven Oscilloquartz technology**
OSAinside™ for faster time to market with less development and integration effort, while providing comprehensive timing functions
- **Highest reliability**
Multiple fallback options – high-stability OCXO/rubidium can be used in the event of GNSS outage
- **Open control interfaces**
Supported via Linux Vanilla OCP TAP driver. No additional driver required

Overview

Standard servers are taking over functions in different network segments, which previously used purpose-built hardware. Some support critical infrastructure applications that require tight synchronization for efficient and reliable operation. Typical server hardware alone cannot meet the required level of synchronization accuracy and resilience. Our OSA 5400 TAP TimeCard™ is a pluggable timing solution for delivering and assuring precise synchronization. It leverages Oscilloquartz market-leading expertise and experience and can be plugged into standard servers to synchronize the server and its network interfaces with ns level accuracy.

The OSA 5400 TAP TimeCard™ provides a comprehensive set of synchronizations functions including a GNSS receiver, and an optional STL receiver. The half-size PCIe-card can be plugged into any standard server to provide accurate timing based on OCP TAP drivers. With the OSA 5400 TAP TimeCard™ installed in a server, applications have access to accurate, resilient and robust timing, synchronized to UTC with the onboard GNSS receiver and optional STL receivers. Other synchronization signals, such as CLK and 1PPS, are also available. Our OSA 5400 TAP TimeCard™ is essential for any server hosting mission-critical and time-sensitive applications.



Oscilloquartz multisource aPNT+™ platform

OSA 5400 TAP TimeCard™

High-level specifications

Key capabilities

- Integrated Multi-band GNSS receiver
- Optional integrated STL receiver-HW ready
- Robust design
- Add-on plugs into hosting device
- Extended holdover

PCIe card form factor

- PCIe interface
- Half-width, standard-height, single- or dual-slot size variants

Timing accuracy

- ± 40 nsec from UTC
- G.8272 / G.8273.1 compliant PRTC-B
- G.811 compliant PRC

Management

- Open control interfaces based on OCP TAP drivers for control and management

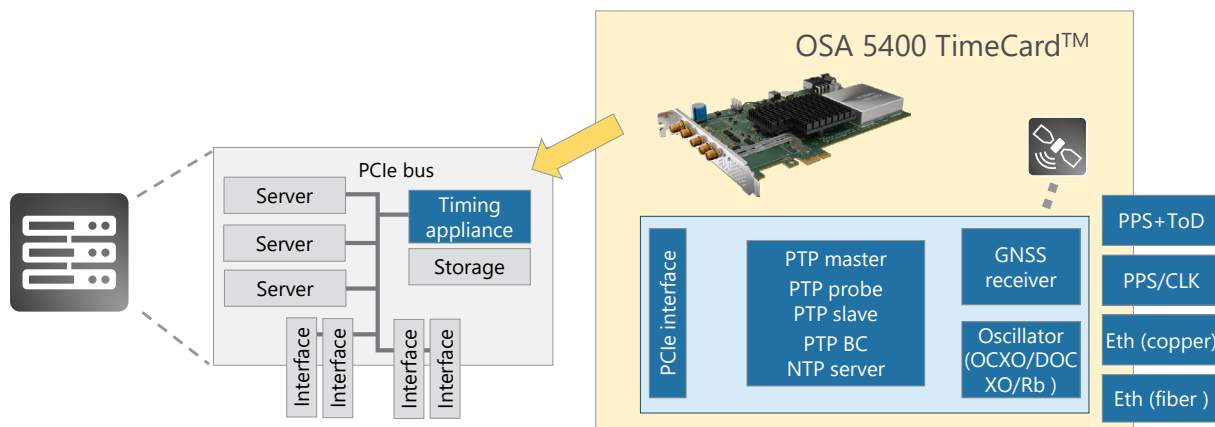
Built-in GNSS receiver

- Multi-band receiver (MB functionality is licensed)
- Jamming and spoofing detection
- Simultaneous usage of dual GNSS frequency bands
- GPS, BeiDou, Galileo, NavIC
- Galileo OSNMA support

Applications in your network

PCIe timing card

- PCIe pluggable card provides any server with accurate and robust timing
- Precise synchronization of mission critical and time-sensitive software application in mobile networks, critical infrastructure, power utilities, professional broadcasting, among others
- Time, frequency and phase synchronization with PTP, NTP, SyncE, TOD
- No need for external synchronization devices
- Enhanced control with direct management integration through open module control



OSA 5400 TAP TimeCard™

Holdover performance

	Clock	Aging / day (after 30 days)	Temperature stability
Quartz	OCXO Stratum 3 / G.812 Type III	$\pm 5 \times 10^{-10}$	$\pm 50 \times 10^{-10}$
Quartz HQ+	High-quality OCXO G.812 Type I	$\pm 2 \times 10^{-10}$	$\pm 2 \times 10^{-10}$
Quartz HQ++	High-quality DOCXO Stratum 2 / G.812 Type II	$\pm 5 \times 10^{-11}$	$\pm 1 \times 10^{-11}$
Rubidium	Rubidium Stratum 2 / G.812 Type II	$\pm 5 \times 10^{-12}$	$\pm 2 \times 10^{-10}$

Note: Effective daily aging after device has been powered for one month

	200nsec	400nsec	1.1usec	1.5usec	5usec	10usec	16ppb	After 24 hours
Quartz	1 hours	2 hours	4 hours	5 hours	8 hours	14 hours	1 month	22 us
Quartz HQ+	4 hours	8 hours	14.5 hours	16.5 hours	1.5 days	2 days	0.5 years	2.3 us
Quartz HQ++	10 hours	17 hours	1.5 days	2.2 days	4.4 days	6.6 days	>1.5 years	600ns
Rubidium	1 day	1.8 days	3.5 days	4 days	8 days	12 days	>5 years	200ns

Note: The above are typical values (1 sigma confident) assuming controlled temperature environment, after the device has been powered for one month and locked to GPS for 72 hours. Due to the excellent temperature stability of the HQ++, the HQ++ holdover will outperform the rubidium holdover when significant temperature variations are presented.

Main applications

- GNSS receiver to PHC support for syncing Server components to UTC via Linux PTP interfaces with PTM support
- GNSS receiver operating as PRTC and PRC

GNSS receiver

- Provides high accuracy for PRTC-B applications
- Accuracy within +/-40nsec from UTC
- Multi-band (L1+L5) , multi-constellation GNSS receiver
- Supports single satellite timing modes
- Survey fixed location
- Configurable fixed location
- Navigation mode
- Configurable satellites SNR and elevation masks
- GPS/QZSS L1 C/A and GLONASS L10F, BeiDou B1, Galileo E1, SBAS (QZSS , WAAS, EGNOS, MSAS), NavIC
- Up to four concurrent GNSS constellations
- User-configurable antenna cable delay compensation
- Micro-miniature AMC4 RF connector , 50ohm (1.2mm mated height max)
- 3.3V@100mA max

External antenna

- User-configurable antenna cable delay compensation
- Voltage to antenna: +3.3VDC
- Antenna connector SMA-F (50ohm)
- PPS (5V/10V)
- CLK

Programmable I/O:

- CH1: SMA-F PPS/ CLK (10MHz) I/O, 50 ohm
- CH2: SMA-F PPS/ CLK (10MHz) I/O, 50 ohm
- CH3: SMA-F PPS/ CLK (10MHz) I/O, 50 ohm
- CH4: SMA-F PPS/ CLK (10MHz) I/O, 50 ohm

Frequency accuracy

- G.811 compliant PRC while locked to GNSS

Indicators

- On-board LEDs for power/GNSS/Ethernet status indication

OSA 5400 TAP TimeCard™

Regulatory and standards compliance

- ETSI EN 300 386 V1.6.1
- EN 55024
- EN 55022 Class-B
- AS/NZS CISPR 22
- FCC CFR 47 Part 15 Subpart B
- ANSI C63.4 Class-B
- IEC/EN 61000-3-2
- IEC/EN 61000-3-3
- IEC/EN 61000-4-2 (ESD): ± 15 kV / ± 8 kV (air/contact)
- IEC/EN 61000-4-3 (RI)
- IEC/EN 61000-4-4 (EFT): 1 kV / 50 A (5/50 ns)
- IEC/EN 61000-4-5 (Surge): 4KV (10/700 μ s)
- IEC/EN 61000-4-6 (CI)
- EN 60950-1: +A11, +A12, +2 (SAFETY)
- RoHS compliance

Mechanical

- Height – 111.15mm , half-length – 165mm
- Width – HQ+ : 14.47mm (single slot),
HQ++/Rubidium : 34.8 mm (dual slot)

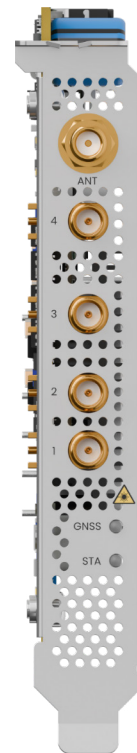
Note:* HQ++ and Rubidium height exceeds single slot height. 2 slot vacancy is required (34.8 mm width). it is possible to insert a short PCIe slot adjacent to the 5400TC with HQ++/Rb, if its length is < 130mm)

Environmental

- Operating temperature: -40°C to 80°C
- Storage temperature: -40°C to +85°C / -104 to 185°F
- Humidity: 5 to 95% (non-condensing)

Power consumption

- Without PoE subtended device:
 - Quartz: 6.5W (typical), 10.5W (max.)
 - Quartz HQ+: 8.5W (typical), 14.5W (max.)
 - Quartz HQ++: 10.5W (typical), 18.5W (max.)
 - Rubidium: 12.5W (typical), 20.5W (max.)



Updated October 7, 2026

