Symmetricom

DATA SHEET

NTP Blades for the SSU 2000

Carrier-class, Plug-in NTP Server Cards for SSU 2000 Synchronization Supply Unit

Key Features

- Five nines availability
- Superior accuracy – hardware time stamping
- Card-based scalability
- Security and authentication
- Precise telecom synchronization over packet networks
- NEBS Level 3 Certification
- CE mark
- RoHS compliant

Key Benefits

- Carrier-class capacity and scalability
- Carrier-class redundancy and availability
- Carrier-class time precision and transaction rate
- Carrier-class flexibility: NTP operates in the same platform with TDM, PTP and SyncE solutions

Carrier-class NTP

NTP requirements in telecommunication networks have rapidly evolved from a "best effort" utility to a mission critical requirement for high QoS content delivery. Carriers have long relied on Synchronization Supply Units (SSUs) to meet all physical layer synchronization requirements with five nines availability. With high performance NTP server blades, the SSU 2000 platform delivers carrier-class NTP to meet demanding next generation network requirements.

The SSU 2000 NTP server modules provide the performance, scale, availability and security that assure high QoS delivery of advanced services such as IPTV. Today, carriers are finding that "best effort" NTP is not sufficient for high QoS packet networks and advanced services. NGN applications such as IPTV are highly dependent on carrier-class NTP. Time coordination of massive amounts of digital content in the head end serving locations is reliant on accurate and secure NTP timestamps.

The Symmetricom® NTP server blades are fully integrated into the SSU 2000 system. NTP cards can be installed as single servers or redundant pairs in any available master or expansion shelf output slot. NTP capacity scales up at a rate of up to 1000 fully authenticated transactions per second for each added card. Front-access NTP traffic ports utilize Small Form-factor Pluggable (SFP) modules for flexibility to support 100 BaseT electrical or 1000Base-X optical or electrical interfaces. NTP server cards can support both independent public and private network domains, providing added security and flexibility. All configuration and management is consolidated through SSU 2000 system management ports to maintain security and isolation from NTP traffic ports.

NTP Blades for SSU 2000 provide superior stability and protection through direct connection to the SSU 2000 system backplane. NTP Stratum level 1 UTC time traceability is established through the GPS input module. NTP Blades for SSU 2000 can also operate at NTP Stratum level 2 with UTC time traceability back to a NTP Stratum 1 module located in another office.

NTP Performance	Enterprise Class	Carrier-Class
Time Stamping Precision	Software (10µs)	Hardware (10ns)
Scalability	Fixed	Card based
Holdover	√	√
Redundancy		√
TL1 Management		√
NEBS		√

Table 1: Carrier-class NTP meets high QoS requirements for NGN telecommunications networks.

Applications

- IPTV content and delivery
- Digital rights management (DRM)
- Billing record management
- IP SLA monitoring
- QoS measurement systems/probes

NTP Blades for the SSU 2000

Specifications

NETWORK PROTOCOL

- NTPv4 – RFC 5905 compliant IPv4, IPv6 (future) TIME STAMPING
- Hardware Time Stamping

SERVER PRECISION

- 10 ns rms typical (See graph 1)

INPUTS

- Stratum 1: GPS input (12 channel, 50ns rms) Connector: TNC or N, dependent on shelf type (L1 Antenna)
- Stratum 2: Full NTP client

NTP TRAFFIC PORTS

- 2 Ethernet Small Form-factor Pluggable (SFP)
  - Optical: 1000 Base-X
  - Electrical: 100 Base-T, 1000 Base-T

NTP TRANSACTION RATE

- 1000/s fully authenticated (up to 1500/s unauthenticated)

AUTHENTICATION

- MD5 (RFC 1321)

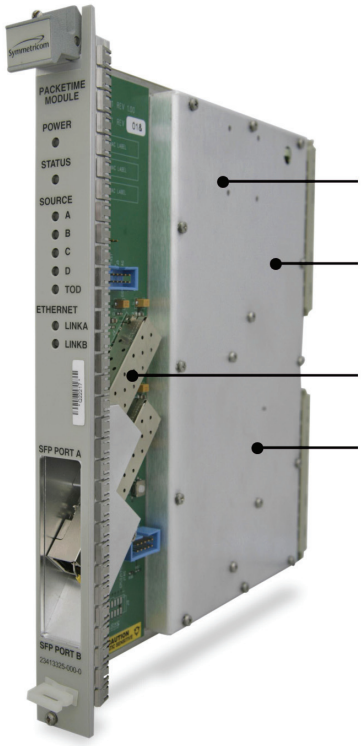
PROTECTION

- 1:1 protection

MANAGEMENT

- TL1- Integrated into SSU 2000 system management (physical isolation from NTP traffic ports)

Please refer to SSU 2000 data sheet for full system specifications.



Hardware time stamping delivers superior accuracy for telecom applications.

High capacity NTP server engine supports up to 1000 fully authenticated transactions per second. System capacity scales up with additional cards.

Dual front-access NTP traffic ports allow for flexible network configuration and protection.

NTP Stratum 1 performance with direct time-of-day reference from GPS input.

Figure 1: IEEE 1588 Blades for the SSU 2000

Graph 1: TDEV: Carrier-Class NTP server card meets high precision telecom requirements.

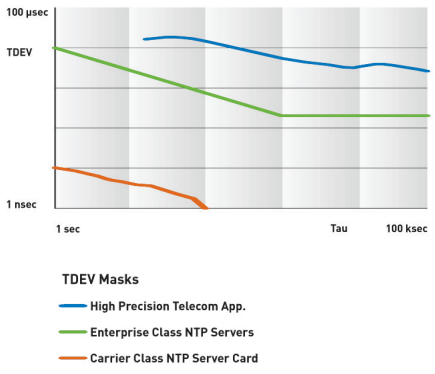


Figure 2: Symmetricom's NTP cards can be installed as single servers or redundant pairs in any available master or expansion shelf output slots.

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