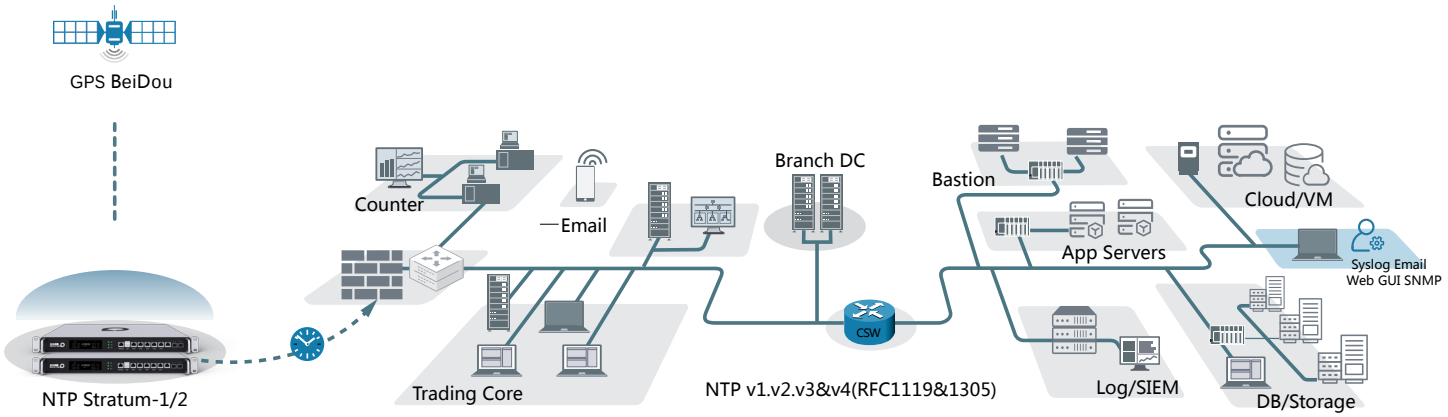
北斗邦泰
BDSTAR TIME

T600-BDL NTP TIME SERVER

A High-Security Time Benchmark for Government Cloud, Finance, Power, Data Centers.



www.bdpnt.com



Key Features

+Ultra-high-bandwidth NTP server
+GNSS-referenced Class 1 clock server suitable for critical struture
+Multi-source,time-keeping,redundant,and link-backup capabilities enhance system resilience
+Standard configuration:6×100/1000BASE-T,RJ45.
+Scalable to 25G/40G/100G/200G speeds.
+Can be connected to another NTP server to form a Level2 clock
+Optional support for high-precision OCXO with 24 hours-deviation less than 10 microsecond
+Supports SSH,SSL,SCP,SNMP,CustomMIB,HTTPS,Telnet
+Multi-layered security features including encryption,certificates, auditing,firewalls,and firmware updates.
+Fully compatible with IPv4 and IPv6 network environments
+Advanced Anti-jammingand spoofing detection algorithms enhance spoofing resistence.
+Accuracy relative to UTC time reaches the nanosecond level
+MTBF>100,000 hours
+Secure and efficient web-based user interface
+Architectural design compaible with single-power-supply redundant, or DC power supply configurations
+Industrial-grade design to meet requirements for long-term stable operation and field deployment

Overview

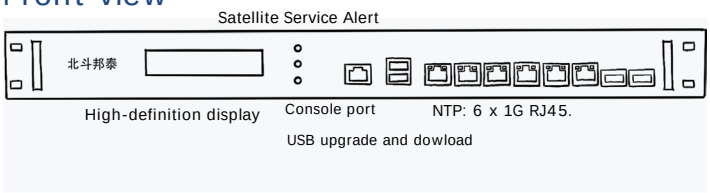
The T600-BDL NTP network time server supports the NTP/SNTP network sy-nchronization protocol and provides high-precision, large-capacity, and high-security network timing services for critical infrastructure. The equipment adopts a industrial motherboard platform, adapts to the linux operating system, supports isolated deployment of business network and management network, and independent configuration and routing strategies of multiple network ports. It also supports link redundancy and automatic failover (such as bonding Active-Backup) and dual-machine hot standby/heartbeat detection to ensure continuous and reliable timing services. The system consists of a GNSS receiving unit, network timing and interface output module, unified operation and maintenance management unit and power supply/alarm module. It supports concurrent reception of multiple constellations (GPS/QZSS, GLONASS,Beidou, GALILEO, etc.), and optional built-in high-performance OCXO to achieve Holdover punctuality after lock loss and continuously output a stable time benchmark. The system has anti-interference/anti-spoofing capabilities, supports anomaly detection and alarm, multi-source comparison, timing quality assessment and lock-out strategy. When the reference source is abnormal, it automatically enters timekeeping and locks smoothly after recovery.

For security and operations, the device supports HTTPS/certificates,hierarchical permissions, audit logs, alarms, firewalls and password policies; it provides a safe and efficient Web unified management interface, supports configuration, monitoring, alarm and log management, and can be connected to the upper network management through SNMP/custom MIB to achieve remote upgrades and batch monitoring. The device supports time/frequency outputs such as TOD, 10MHz, IRIG-B, and 1PPS, and supports logging, USB upgrade/export, and dry contact alarms. It is suitable for scenarios such as government affairs, national defense, finance , electric power, communications, data centers, and industrial automation.

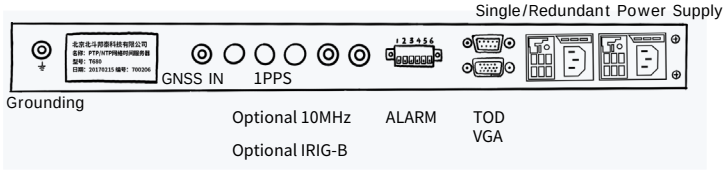
Main functions

+ Provides a unified time reference for servers, switches,work stations, and terminal devices
+ Web-based management interface supporting parameter configuration , monitoring, alerts, and log management
+Tiered permissions, audit trails for critical operations, and log traceability to meet compliance and internal controlre quirements
+ Security configurations including HTTPS/certificates, passwords, firewalls, and alarm integration
+ Heartbeat detection and same-IP mutual backup for rapid primary-to standby switching and business continuity
+ Supports bonding to enhance link reliability and network availability
+ Supports remote upgrades, remote maintenance, and policy deployment to reduce operational costs
+ SNMP and custom MIB integration with network manage systems for batch monitoring and alarm aggregation

Front view



Back view



Technical Specifications

Time Protocol

NTP v2/v3/v4 (RFC 1119 / RFC 1305 / RFC 5905)
SNTP (RFC 2030)
NTP Authentication (MD5) (RFC 1321)
TIME Protocol (RFC 868) DAYTIME Protocol (RFC 867)
NTP mode：Unicast、Broadcast、Multicast、Autokey
Telnet (RFC 854) SSH / SCP (Based on RFC 4251 stand)
FTP (RFC 959) SNMP MIB-II (RFC 1213)
IPv4、IPv6、IPv4/IPv6 Hybrid

Synchronization Performance

GNSS-reference primary clock server, sync accuracy of 1 μs
User terminal sync accuracy: 100 μs (typical value for a local area network)
User capacity: Over 2 million devices
NTP requests: 23,000 per second
Can connect to another NTP server to form a Level2 clock
Supports up to 10,000 log entries

GNSS Receiver

Receiver type: 72-channel professional timing type
GPS/QzSS L1 C/A, GLONASS L10F, BeiDou B1,SBAS L1
C/A：WAAS, EGNOS, MSAS,GAGAN, GalileoE1B/C
Data update rate: parallel GNSS up to 4Hz
Positioning accuracy 2.5 m CEP; cold start: 28s; auxiliary cold start 2s;
Timing accuracy : 20 ns
Sensitivity: tracking and navigation -166dBm; cold start -157dBm

Front panel

- High-definition LCD screen
  Displays satellite acquisition status, time, number of satellites, latitude and longitude, altitude, IP addresses of each network card, and system status
- Three-color indicator light
  Indicates whether the reference source is available, whether the clock service is running, and whether the satellite is locked
- NTP ports：6x1G,RJ45
- Console: RJ-45, 1-way, RS232, NTP console port
- USB：2 -way，Backup, Restore, Upgrade

Back panel

ANT IN：BNC，1-way，GNSS signal input, 5V DC output
TOD：DB-9 female,1-way, RS232, time and location information
VGA：DB-9 female,1-way，Display output
ALARM：3 sets, power supply, GNSS, and port capacity alarms
1PPS：BNC, 1-way，accuracy 20ns
10MHz Option： BNC, 1-way, sine wave, range 12+1dBm，50Ω
IRIG-B Option: BNC, 1 channel, TTL, sync accuracy 20 ns

(Opt-OCXO)

High performance constant temperature crystal oscillator option

Signal	Item		Indicators
10MHz output	Waveform		sine wave
	Output impedance		50Ω
	Output power		⩾ 9dBm
	Harmonic suppression		⩽ - 40dBc
	1s stability		⩽ 3E - 12
	Phase noise	@1Hz	⩽ - 95dBc
		@10Hz	⩽ - 130dBc
		@100Hz	⩽ - 145dBc
		@1kHz	⩽ - 155dBc
		@10kHz	⩽ - 160dBc
	Tracking accuracy (24-hour average)		⩽ 1E - 12
Time-keeping	24 hours (24 hours after taming)		⩽ 10us

1PPS output

Signal	Item	Indicators
1PPS output	Output level	TTL
	High-level pulse width	100ms
	Rise/fall accuracy	＜ 5ns
	Output impedance	50Ω
	Sync accuracy	＜ 20ns

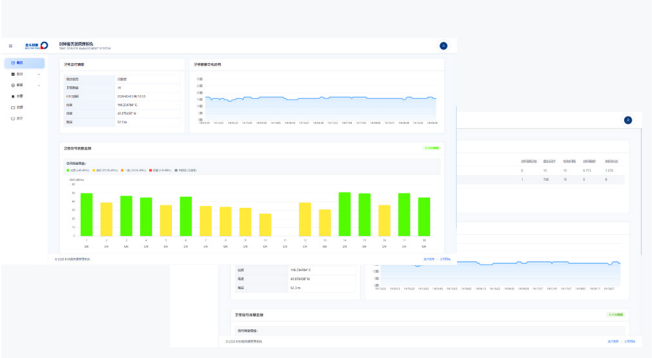
Physical and Environmental Parameters

Size：1U，440×44.5×364mm
Weight：3 Kg
Power supply：1-channel/redundant (Opt-P)，220V±20%，47Hz ～ 63Hz
Operating temperature：-10℃～ +55℃ (Host) -40℃～ +75℃ (Antenna)
Storage temperature：-45℃～ +85 ℃
Humidity：95% condensation-free
Power consumption：50W

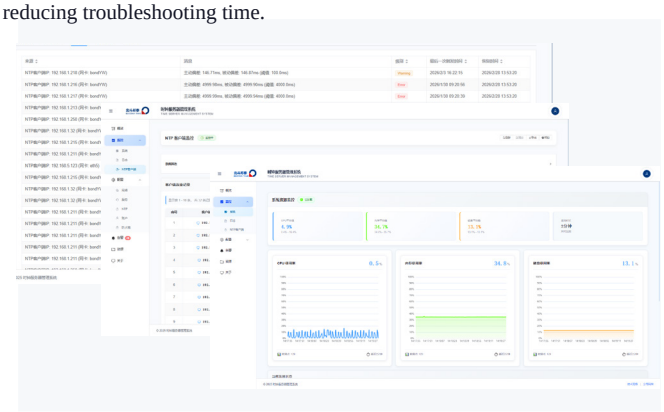
Mark	Description
-Q	Domestic Kylin Operating System
-OCXO	OCXO+IRIG-B Output
-P	Redundant power supply
-B	IRIG-B DC Input
-B3	BDS/B3 Military code input
-A50-200	Standard 50-meter, support 50-200-meter antenna cables
-CA23-RP	Antenna surge arrester

Software Performance

Time Server Management System （Web GUI）



Time Server Management System (Web GUI) BDSTAR.v1 is an integrated webbased operations and maintenance platform independently developed by BDSTAR TIME for the T600 series network time servers. Designed for critical scenarios such as government, finance, power, telecommunications, and data centers, it provides one-stop management capabilities including visual monitoring, security configuration, alarm notifications, audit trail tracking, and resource export. Users can view device timing status, configure network isolation and redundancy, adjust NTP parameters, set alarm policies, perform log auditing, and execute batch operations without logging into the command line, significantly lowering the barrier to time system maintenance and reducing troubleshooting time.



Monitoring Targets and Information Dimensions

Satellite: UTC/Locked, Number of Visible Satellites Trend Chart + Single-Satellite Signal Quality, Position/Altitude
Timing: Reference source/synchronization status, server time, deviation/jitter, hierarchy/status
Client: Client List, Passive/Active Deviation + Periodic Statistics, Filter/ Paginate/Export
Resources: CPU/Memory/Disk Health and Trends, Critical Threshold Alerts

Configuration capabilities

Network: Multiple network ports with independent configuration; IPv4/IPv6, DNS, MTU, static routing
Redundancy: bonding (Active-Backup / 802.3ad), primary-standby/link aggregation modes, etc.
Time Synchronization: NTP Source/Priority, Polling Parameters, Access Control (Whitelist/Policy)
Security: HTTPS/certificates, password policies, user role-based permissions, basic firewall policies
Services: Management of service startup, shutdown, and auto-startup for NTP, SSH, SNMP, and other

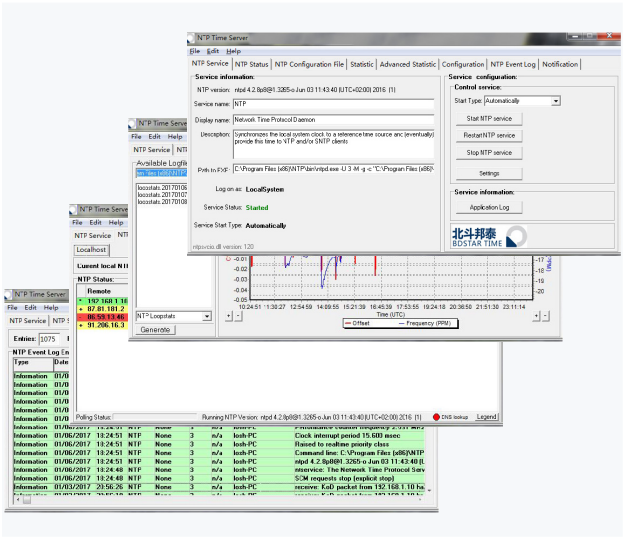
Alarm Center

Alarm Dashboard: Level/Time/Duration
Alarm Items: Loss of Lock, Iess Number of Satellites, Client Deviation Threshold (Graded)
Notifications: Interface alerts, email, Syslog; supports historical data and silent mode

Log Auditing and Resource Center

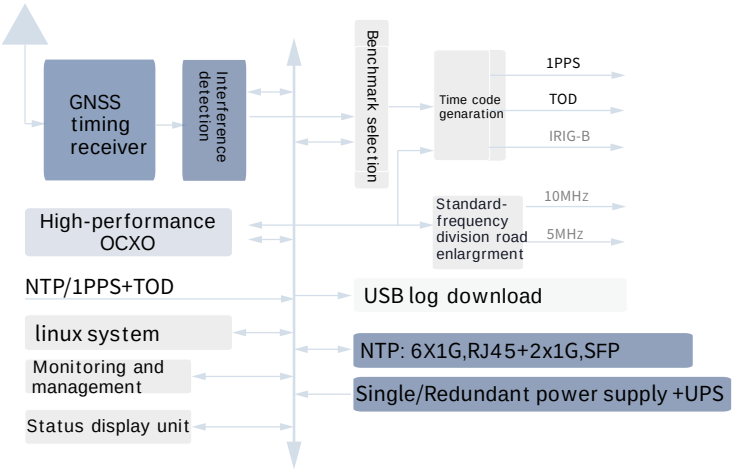
Log Auditing: Online viewing and retention of login, alert, time sync/satellite, and system operation logs
Resource Center: Centralized downloads of MIBs and documentation, supporting network administrator integration and on-site troubleshooting
Export Capabilities: Key lists and history can be exported for easy delivery and archiving

NTP client synchronization software



Provide window system NTP protocol time adjustment software, run in service mode, and provide operating status monitoring, control, and conf iguration interfaces

Composition diagram



Standard configuration

1 host device
1 high-sensitivity timing antenna for 50-meter cable
Installation bracket 1 set
1.5-meter power cord, 1-2 pieces
1.5-meter control line, 1 unit
3-meter network cable,1 unit
Instruction Manual 1
Accessories （User manual、NTP configuration guide、NTP Client sync software SNTP timing software、Time server managemant system （Web GUI） BDSTAR.v1、 windows/Unix/Linux/AIX/Solaris (System sync reference summary)

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Address: 3rd Floor, 16A,North district, No.68 Beiqing Road, Haidian District, Beijing, China. Zip code: 100094
Tel:010-60760678
Fax:010-82475017
liyifan@nav-cn.com.
www.bdpnt.com