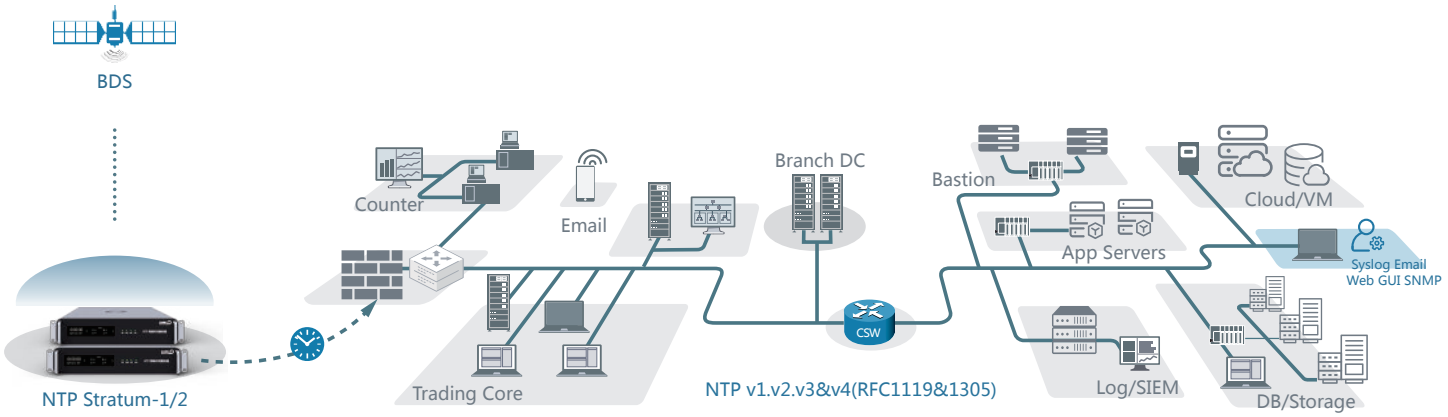
北斗邦泰
BDSTAR TIME

T600-LBDRBP NTP TIME SERVER

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

Safe · Efficient · Serviceable · Localization Solution

www.bdpnt.com



Key Features

+ 10 Gigabit Ethernet port with 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 x 100/1000BASE-T RJ45.+ 2 x 100/1000 BASE-T SFP. +2 x 10-Gigabit SFP+., and supporting additional expansion of ports
+ Scalable to 25G/40G/100G/200G speeds.
+ Can be connected to another NTP server to form a Level2 clock
+ Built-in high-precision rubidium atomic clock with annual-deviation less than 1 millisecond
+ 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-jamming and 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 compatible with single-power-supply, redundant, or DC power supply configurations
+ Industrial-grade design to meet requirements for long-term stable operation and field deployment

Main functions

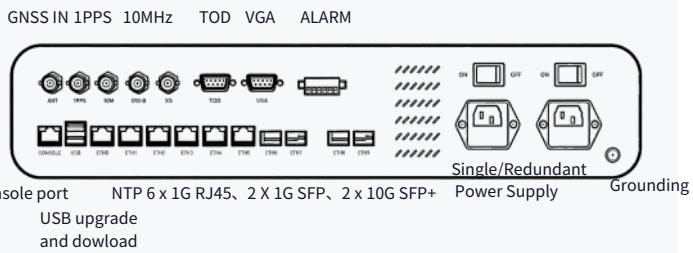
+ Provides a unified time reference for servers, switches,work-stations, and terminal devices
+ Web-based management interface supporting parameter configuration, monitoring, alerts, and log management
+ Tiered permissions, audit trails for critical operations, and log traceability to meet compliance and internal control requirements
+ Security configurations including HTTPS/certificates, passwords, firewalls, and alarm integration
+ Heartbeat detectionand 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 management systems for batch monitoring and alarm aggregation

Overview

The T600-LBDRBP NTP network time server delivers high-precision, high-capacity, and secure time synchronization for critical infrastructure using NTP/SNTP protocols. Built on a high-performance industrial motherboard, it supports isolated service and management networks, independent routing per port, link redundancy with active-backup failover, and dual-machine hot standby with heartbeat detection for continuous reliability.
The system integrates a multi-constellation GNSS receiver (GPS/QZSS, GLONASS, BeiDou, Galileo), a rubidium atomic clock for high-stability holdover, a network time synchronization and interface module, a unified O & M management unit, and a power/alarm module. It features anti-jamming and anti-spoofing capabilities, multi-source comparison, timing quality assessment, and automatic anomaly detection/alarming. Upon signal loss, it seamlessly enters holdover mode and reacquires the reference when restored.
For security and operations, the device supports HTTPS/certificates, multi-level access control, audit logs, alerts, firewalls, and strong password policies. It offers a secure, unified web interface for configuration, monitoring, alerting, and log management, and integrates with upper-level NMS via SNMP or custom MIBs for remote upgrades and batch monitoring. It provides time/frequency outputs including TOD, 10 MHz, and 1 PPS, along with USB-based firmware updates, log export, and dry contact alarms. It is suitable for applications in government, defense, finance, power, telecommunications, data centers, and industrial automation.

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, synchronization accuracy of 1 s
User terminal sync accuracy: 100 s (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

Back panel

ANT IN：BNC，1 - way，GNSS signal input, 5V DC output
NTP ports：1G x 6 -way.RJ45, 2 G X 2 - way.SFP，10G X 2 - way.SFP+
USB：2 -way，Backup, Restore, Upgrade
Console： RJ-45，1 -way，RS232 ，NTP console port
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： BNC,1-way，sine wave，range 12+1dBm，50Ω

High-performance rubidium atomic clock

Singal	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)		⩽ 500ns

1PPS output

Singal	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

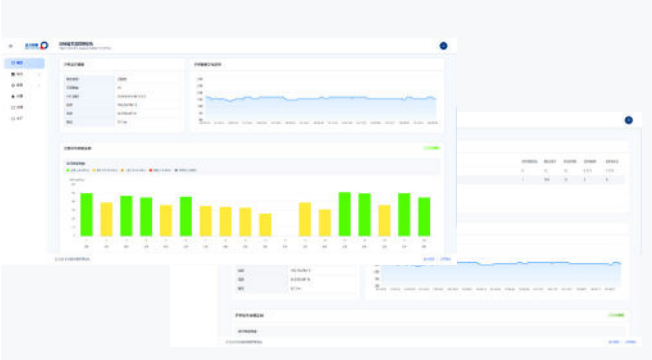
Size：2U， 4470×89×300mm
Weight：3.5 Kg
Power： Dual-path redundancy，220V±20% ，47Hz ～ 63Hz
Operating temperature：-10°C～ +55°C（Host）-40°C～ +75°C（Antenna）
Storage temperature：-45°C～ +85 °C
Humidity：95% condensation-free
Power consumption：50W

Physical and Environmental Parameters

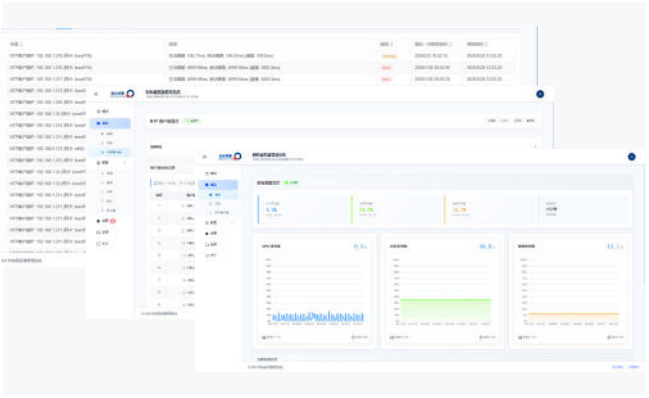
Mark	Description
-Q	Domestic Kylin Operating System
-B	IRIG-B DC input
-B3	BDS/B3 Military code input
-A80-200	Standard 50-meter, support 50-200-meter antenna cables
-CA23-RP	Antenna surge arrester

Software Performance

Time Server Management System（Web GUI）



Time Server Management System (Web GUI) BDSTAR.v1 is an integrated web-based 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 services (enabling more controlled changes)

Alarm Center

Alarm Dashboard: Level/Time/Duration

Alarm Items: Loss of Lock, less Number of Satellites, Client Deviation Threshold (Graded)

Notifications: Interface alerts, email, Syslog; supports historical data and silent mode

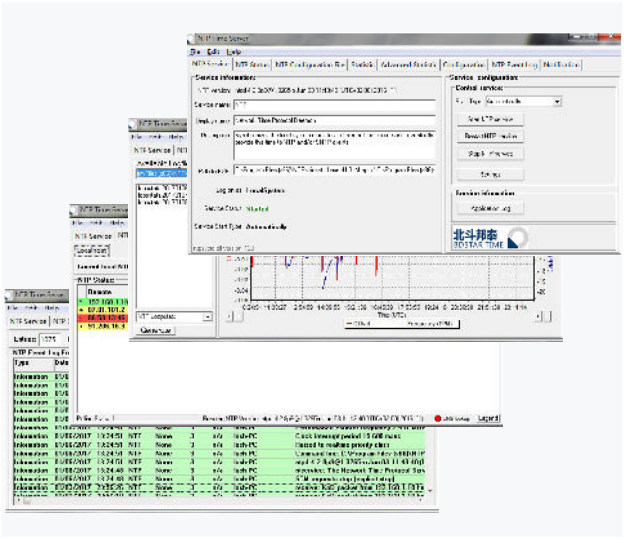
Log Auditing and Resource Center

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

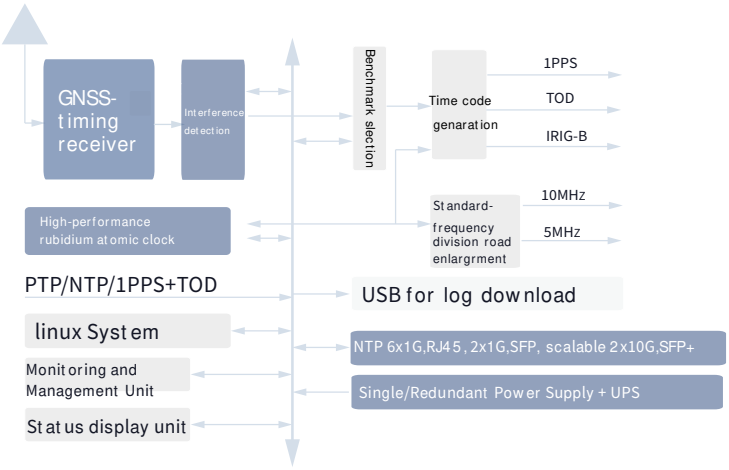
Export Capabilities: Key lists and history can be exported for easy delivery and archiving

NTP client synchronization software



Provides NTP time synchronization software for Windows systems, which runs as a service and offers interfaces for monitoring, controlling, and configuring its operational status.

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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