Timing & Synchronization

GNSS Timing Instruments

Timing and Synchronization

Timing and synchronization are indispensable in our increasingly digital, networked world. Precise, accurate time enables virtually all infrastructures such as data centers, wired and wireless communications, financial exchanges, industrial networks, smart powergrid, and other secure communications. Wireless networks, for example, rely on highly accurate timing and synchronization for smooth cell-to-cell transfers of the mass of voice, video and mobile data deluging the networks daily. Precise timing is similarly vital for financial networks processing billions of dollars in transactions daily.

Achieving highly accurate precision time is no easy feat from a technological perspective, so it's important to find a resource you can trust. Our end-to-end timing solutions generate, distribute, and apply precise time for multiple industries, including communications, aerospace/defense, IT infrastructure, financial services, industrial and more. Microchip customers range from communications service providers and network equipment manufacturers to governments and their suppliers worldwide.

Leveraging Microchip's advanced portfolio of timing technologies, services, and solutions, we enable our customers to build more reliable networks and systems supporting today's precise timing standards, including:

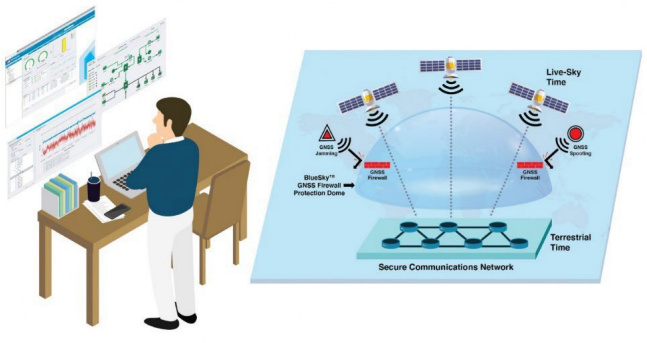
- GPS-based timing
- IEEE 1588 Precision Time Protocol (PTP)
- Network Time Protocol (NTP)
- Synchronous Ethernet (SyncE) and
- Data-over-Cable Service Interface Specifications (DOCSIS) timing

Updates to GPS Data Validation Rules

Microchip is continuously tracking GPS signal activity.

Microchip's worldwide deployment of atomic clocks and GPS systems are used as a reference frame to continuously analyze GPS data for changes including spoofing threats, jamming attacks, multipath signal interference, atmospheric activity and any other effect that degrades GPS performance.

Unified Management of "Terrestrial Time" and "Live-Sky Time" Sources to Enable Resilient Timing for Critical Infrastructure



Secure GNSS Distribution Systems

Product	Product Photo	Product Features
SyncServer S650		• <15ns RMS to UTC (USNO) via GPS • <1x10-12 Frequency accuracy • Popular timing signal inputs/outputs standard in the base timing I/O module (IRIG B, 10 MHz, 1PPS) • Four standard GbE ports with NTP hardware timestamping, two additional 10 GbE ports optional • Superior 10 MHz Low Phase Noise Options • Galileo / GLONASS / BeiDou / QZSS / SBAS Option • DISA/DoDIN Approved Product
SyncServer S650-M Code		• <50 ns RMS to UTC (USNO) via GPS • GPS M-Code MPE-M Type II PPS L1/L2 receiver • <1x10^{-12} Frequency accuracy • Most popular timing signal inputs/outputs are standard in the base timing I/O module (IRIG B, 10 MHz, 1PPS) • Four standard GbE ports, all with patented NTP/PTP hardware timestamping, two additional 10 Gbe ports optional • Superior 10 MHz Low Phase Noise Options • DISA/DoDIN Approved Product
BlueSky™ GNSS Firewall 2200		• Identifies and protects GNSS systems from spoofing and jamming • Integrates seamlessly between existing GNSS antenna and receiver system(s) • Optional internal MAC (Miniature Atomic Clock) or external 1PPS and 10MHz timing reference inputs for extended holdover • Remote CLI in addition to secure and easy-to-use web interface • Centralized control and BlueSky Performance Monitoring using Microchip's TimePictra management platform
SyncSystem 4380A		• Accuracy <10ns RMS (Time); <1E-13 @1 day (Frequency) • Phase Noise: -110dBc/Hz (1 Hz Offset) • Holdover: 250 ns @ 1 day • L1/L2 GPS receiver mitigates effects of ionospheric delay changes and supports advanced GPS processing • Redundant power supplies and hot-swappable input/output modules

Support

Microchip is committed to supporting its customers in developing products faster and more efficiently. We maintain a worldwide network of field applications engineers and technical support ready to provide product and system assistance. For more information, please visit www.microchip.com:

- Technical Support: www.microchip.com/support
- Evaluation samples of any Microchip device: www.microchip.com/sample
- Knowledge base and peer help: www.microchip.com/forums
- Sales and Global Distribution: www.microchip.com/sales

Training

If additional training interests you, Microchip offers several resources including in-depth technical training and referencematerial, self-paced tutorials and significant online resources.

- Overview of Technical Training Resources: www.microchip.com/training
- MASTERs Conferences: www.microchip.com/masters
- Developer Help Website: www.microchip.com/developerhelp
- Technical Training Centers: www.microchip.com/seminars

Sales Office Listing

AMERICAS

Atlanta, GA
Tel: 678-957-9614

Austin, TX
Tel: 512-257-3370

Boston, MA
Tel: 774-760-0087

Chandler, AZ (HQ)
Tel: 480-792-7200

Chicago, IL
Tel: 630-285-0071

Dallas, TX
Tel: 972-818-7423

Detroit, MI
Tel: 248-848-4000

Houston, TX
Tel: 281-894-5983

Indianapolis, IN
Tel: 317-773-8323
Tel: 317-536-2380

Los Angeles, CA
Tel: 949-462-9523
Tel: 951-273-7800

Raleigh, NC
Tel: 919-844-7510

New York, NY
Tel: 631-435-6000

San Jose, CA
Tel: 408-735-9110
Tel: 408-436-4270

Canada – Toronto
Tel: 905-695-1980

EUROPE

Austria - Wels
Tel: 43-7242-2244-39

Denmark - Copenhagen
Tel: 45-4450-2828

Finland - Espoo
Tel: 358-9-4520-820

France - Paris
Tel: 33-1-69-53-63-20

Germany - Garching
Tel: 49-8931-9700

Germany - Haan
Tel: 49-2129-3766-400

Germany - Heilbronn
Tel: 49-7131-67-3636

Germany - Karlsruhe
Tel: 49-721-62537-0

Germany - Munich
Tel: 49-89-627-144-0

Germany - Rosenheim
Tel: 49-8031-354-560

EUROPE

Israel - Ra'anana
Tel: 972-9-744-7705

Italy - Milan
Tel: 39-0331-742611

Italy - Padova
Tel: 39-049-7625286

Netherlands - Drunen
Tel: 31-416-690399

Norway - Trondheim
Tel: 47-7289-7561

Poland - Warsaw
Tel: 48-22-3325737

Romania - Bucharest
Tel: 40-21-407-87-50

Spain - Madrid
Tel: 34-91-708-08-90

Sweden - Gothenberg
Tel: 46-31-704-60-40

Sweden - Stockholm
Tel: 46-8-5090-4654

UK – Wokingham
Tel: 44-118-921-5800

ASIA/PACIFIC

Australia - Sydney
Tel: 61-2-9868-6733

China - Beijing
Tel: 86-10-8569-7000

China - Chengdu
Tel: 86-28-8665-5511

China - Chongqing
Tel: 86-23-8980-9588

China - Dongguan
Tel: 86-769-8702-9880

China - Guangzhou
Tel: 86-20-8755-8029

China - Hangzhou
Tel: 86-571-8792-8115

China - Hong Kong SAR
Tel: 852-2943-5100

China - Nanjing
Tel: 86-25-8473-2460

China - Qingdao
Tel: 86-532-8502-7355

China - Shanghai
Tel: 86-21-3326-8000

China - Shenyang
Tel: 86-24-2334-2829

China - Shenzhen
Tel: 86-755-8864-2200

China - Suzhou
Tel: 86-186-6233-1526

China - Wuhan
Tel: 86-27-5980-5300

China - Xiamen
Tel: 86-592-2388138

China - Xian
Tel: 86-29-8833-7252

ASIA/PACIFIC

China - Zhuhai
Tel: 86-756-321-0040

India - Bangalore
Tel: 91-80-3090-4444

India - New Delhi
Tel: 91-11-4160-8631

India - Pune
Tel: 91-20-4121-0141

Japan - Osaka
Tel: 81-6-6152-7160

Japan - Tokyo
Tel: 81-3-6880-3770

Korea - Daegu
Tel: 82-53-744-4301

Korea - Seoul
Tel: 82-2-554-7200

Malaysia - Kuala Lumpur
Tel: 60-3-7651-7906

Malaysia - Penang
Tel: 60-4-227-8870

Philippines - Manila
Tel: 63-2-634-9065

Singapore
Tel: 65-6334-8870

Taiwan - Hsin Chu
Tel: 886-3-577-8366

Taiwan - Kaohsiung
Tel: 886-7-213-7830

Taiwan - Taipei
Tel: 886-2-2508-8600

Thailand - Bangkok
Tel: 66-2-694-1351

Vietnam - Ho Chi Minh
Tel: 84-28-5448-2100