

Description

The IEEE 1588-2008 Precision Time Protocol (PTP) is a packet-based synchronization mechanism used in packet-switched networks. PTP synchronizes the clocks of different devices with the most accurate clock on the network – usually a precise, grandmaster clock such as one using a Primary Reference Time Clock (PRTC) time signal.

The 82P33913-x is a software and hardware system that can operate as a PTP slave or PTP master. As a PTP slave, the 82P33913-x recovers accurate and stable electrical synchronization signals from a packet-based reference generated by a PTP master. As a PTP master, the 82P33913-x can lock to a stable electrical clock source and generate packet based PTP references for downstream PTP slaves.

The 82P33913-x is available with the two software options listed in [Table 1](#).

Table 1. Software Options by Part Number

Part Number	Included Software
82P33913	IDT Clock Recovery Servo Software
82P33913-1	IDT Clock Recovery Servo Software IEEE 1588 Protocol Stack

Typical Applications

- Access routers, edge routers, core routers
- Carrier Ethernet switches
- Multiservice access platforms
- PON OLT
- LTE eNodeB
- ITU-T G.8265.1 and G.8275.1 Telecom Profile clock synthesizer
- ITU-T G.8273.2 Telecom Boundary Clock (T-BC) and Telecom Time Slave Clock (T-TSC)
- ITU-T G.8264 Synchronous Equipment Timing Source (SETS)
- ITU-T G.8263 Packet-based Equipment Clock (PEC)
- ITU-T G.8262 Synchronous Ethernet Equipment Clock (EEC)
- ITU-T G.813 Synchronous Equipment Clock (SEC)
- Telcordia GR-253-CORE Stratum 3 Clock (S3) and SONET Minimum Clock (SMC)

Features

- System implements ITU-T telecom profiles
- Composed of IDT's IEEE 1588 software and IDT's Synchronization Management Unit (SMU) hardware
- Operates as IEEE 1588 / PTP slave
- Recovers accurate and stable synchronization signals from packet based IEEE 1588 / PTP master
- Provides integrated physical layer frequency support
- Operates as an IEEE 1588 / PTP master

Software

- C99 source code distribution, supporting POSIX-based Operating Systems (OSs) such as Linux
- IEEE 1588 compliant Precision Time Protocol (PTP) stack
- Abstraction interface supports user-supplied IEEE 1588 compliant Precision Time Protocol (PTP) stack
- Reference trackers filter packet synchronization noise from IEEE 1588 unaware networks

Hardware

- Synchronization Management Unit (SMU) provides tools to manage physical layer and packet based synchronous clocks for IEEE 1588 Telecom Profile applications
- Supports independent IEEE 1588 and Synchronous Ethernet (SyncE) timing paths
- Combo mode provides SyncE physical layer frequency support for IEEE 1588 Telecom Boundary Clocks (T-BC) and Telecom Time Slave Clocks (T-TSC) per G.8273.2
- Digital PLLs can be configured as Digitally Controlled Oscillators (DCOs) for IEEE 1588 clock synthesis
- Generates G.8262 compliant SyncE clocks
- Fractional-N input dividers support a wide range of reference frequencies
- Locks to 1 pulse per second (PPS) references from GPS based sources
- Loads configuration from an external EPROM after reset

System Component Documentation

The detailed characteristics of the 82P33913-x software and hardware components are described in other documents as shown in [Table 2](#) and [Table 3](#).

Table 2. Software Documentation

Software System Component	Reference
82P33913-x IEEE 1588 Software	Please contact IDT

Table 3. SMU Hardware Documentation

Part Number	Reference
82P33913 82P33913-1	82P33813 Datasheet

Ordering Information

Orderable Part Number	Package	Shipping Packaging	Temperature
82P33913NLG	72-pin QFN Green Package	Tray	-40° to +85°C
82P33913NLG8	72-pin QFN Green Package	Tape & Reel, Pin 1 Orientation: EIA-481-C	-40° to +85°C
82P33913NLG/W	72-pin QFN Green Package	Tape & Reel, Pin 1 Orientation: EIA-481-D	-40° to +85°C
82P33913-1NLG	72-pin QFN Green Package	Tray	-40° to +85°C
82P33913-1NLG8	72-pin QFN Green Package	Tape & Reel, Pin 1 Orientation: EIA-481-C	-40° to +85°C
82P33913-1NLG/W	72-pin QFN Green Package	Tape & Reel, Pin 1 Orientation: EIA-481-D	-40° to +85°C

Table 4. Pin 1 Orientation in Tape and Reel Packaging

Part Number Suffix	Pin 1 Orientation	Illustration
NLG8 BAG8	Quadrant 1 (EIA-481-C)	
NLG/W	Quadrant 2 (EIA-481-D)	

Revision History

Revision Date	Description of Change
December 5, 2017	Initial release of stand-alone <i>82P33913 / 82P33913-1 Datasheet</i> .



Corporate Headquarters
6024 Silver Creek Valley Road
San Jose, CA 95138 USA
www.IDT.com

Sales
1-800-345-7015 or 408-284-8200
Fax: 408-284-2775
www.IDT.com/go/sales

Tech Support
www.IDT.com/go/support

DISCLAIMER Integrated Device Technology, Inc. (IDT) and its affiliated companies (herein referred to as "IDT") reserve the right to modify the products and/or specifications described herein at any time, without notice, at IDT's sole discretion. Performance specifications and operating parameters of the described products are determined in an independent state and are not guaranteed to perform the same way when installed in customer products. The information contained herein is provided without representation or warranty of any kind, whether express or implied, including, but not limited to, the suitability of IDT's products for any particular purpose, an implied warranty of merchantability, or non-infringement of the intellectual property rights of others. This document is presented only as a guide and does not convey any license under intellectual property rights of IDT or any third parties.

IDT's products are not intended for use in applications involving extreme environmental conditions or in life support systems or similar devices where the failure or malfunction of an IDT product can be reasonably expected to significantly affect the health or safety of users. Anyone using an IDT product in such a manner does so at their own risk, absent an express, written agreement by IDT.

Integrated Device Technology, IDT and the IDT logo are trademarks or registered trademarks of IDT and its subsidiaries in the United States and other countries. Other trademarks used herein are the property of IDT or their respective third party owners. For datasheet type definitions and a glossary of common terms, visit www.idt.com/go/glossary. Integrated Device Technology, Inc.. All rights reserved.