HIGHLIGHTS

- 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

APPLICATIONS

- Access routers, edge routers, core routers
- Carrier Ethernet switches
- Multiservice access platforms
- PON OLT
- LTE eNodeB
- ITU-T G.8265.1 & 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)

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DESCRIPTION

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 82P33931-1 is a software and hardware system that can operate as a PTP slave or PTP master. As a PTP slave the 82P33931-1 recovers accurate and stable electrical synchronization signals from a packet based reference generated by a PTP master. As a PTP master the 82P33931-1 can lock to a stable electrical clock source and generate packet based PTP references for downstream PTP slaves

The 82P33931-1 is available with several software and hardware options. The software options are outlined in Table 1 by root part number. The hardware options depend on the choice of Synchronization Management Unit (SMU) hardware; the SMU hardware documentation is listed in Table 3 by root part number.

Table 1: Software Options by Root Part Number

Root Part Number	Included Software
82P33931	IDT clock recovery servo software
82P33931-1	IDT clock recovery servo software IEEE 1588 Protocol Stack

System Component Documentation

The detailed characteristics of the 82P33931-1 software and hardware components are described in other documents as shown in Table 2 and Table 3.

Table 2: Software Documentation

Software System Component	Software Documentation
82P33931-1 IEEE 1588 software	Please contact IDT

Table 3: SMU Hardware Documentation

Root Part Number	Documentation
82P33931 82P33931-1	82P33831 datasheet

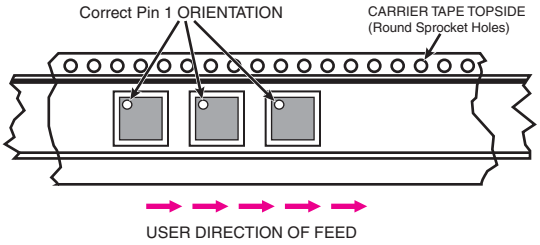
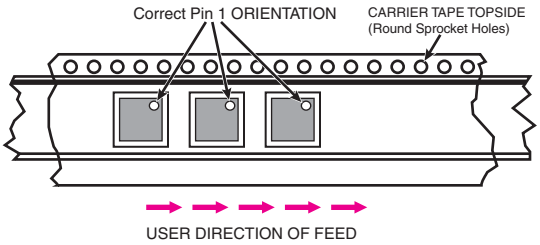
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ORDERING INFORMATION

Table 4: Ordering Information

Part/Order Number	Package	Shipping Packaging	Temperature
82P33931BAG	144-pin CABGA green package	Tray	-40^0 to +85^{0}C
82P33931BAG8	144-pin CABGA green package	Tape & Reel, Pin 1 Orientation: EIA-481-C	-40^0 to +85^{0}C
82P33931-1BAG	144-pin CABGA green package	Tray	-40^0 to +85^{0}C
82P33931-1BAG8	144-pin CABGA green package	Tape & Reel, Pin 1 Orientation: EIA-481-C	-40^0 to +85^{0}C

Table 5: 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

Rev.	Date	Description of Change
1	05/14/2015	Initial Release
2	03/14/2016	Added part number 82P33913/82P33913-1 throughout the datasheet. Ordering Information table - added 82P33913/82P33913-1 part number information.
3	3/16/2016	Table 4, Ordering Information Table - corrected “Shipping & Packaging” for 82P33913/ -1.
4	4/5/2017	Separated parts into individual datasheets.

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(Rev.1.0 Mar 2020)

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