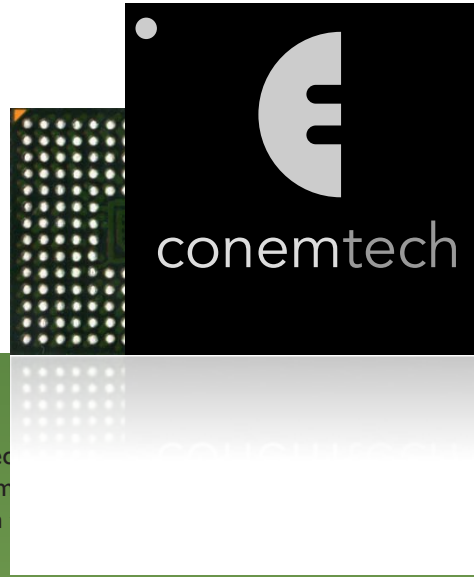# DK4 Development Kit for IEEE1588

Applications

• IEEE 1588-2008 Grandmaster or Ordinary Clock with two different oscillator alternatives: TCXO, OCXO
• Grandmaster operation with PPS and ToD input from GPS or other Time Source
• PPS, ToD and syntonized frequency output
• Compact OEM design.

The DK4 is a complete kit for the development environment of Conemtech's ̶ ̶ ̶ ̶ ̶ ̶ ̶ ̶ ̶ ̶ ̶ ̶ ̶ ̶ ̶ ̶ IEEE 1588 is used for time synchronization. The kit is intended for the development ̶ ̶ ̶ ̶ ̶ ̶ ̶ ̶ ̶ ̶ ̶ on slaves or general Ordinary Clocks in the IEEE1588 network. It is based on ̶ ̶ ̶ ̶ ̶ ̶ ̶ ̶ ̶ ̶ ̶ ̶ ̶ ̶ ̶ 0-34 subsystem-module.

Utilizing a P40 systems platform the DK4 allows for fast prototyping and validation of software. The kit comes as a ready-to-go subsystem to a PC development station. A PTP master or slave can be set up and started within minutes of unpacking. The functionality of the system is delivered by the C34 controller which is a dedicated controller for time synchronized applications. Its outstanding features stem from the ability to analyze and act on gate level, in real-time. The system has the ability to sustain processing of close to 20 Mbit/s of IP dataflow, while running the IEEE 1588 Protocol software in the background.

The M20-34 module embeds a complete software platform including real-time operating system, flash file system, TCP/IP communication stack, FTP and telnet server. For the execution of the IEEE1588-2008 protocol, a fully compliant software stack for Ordinary or Master clock implementations is integrated. The development environment enables the application designer to manage projects with configurations for different clock modes and precision.
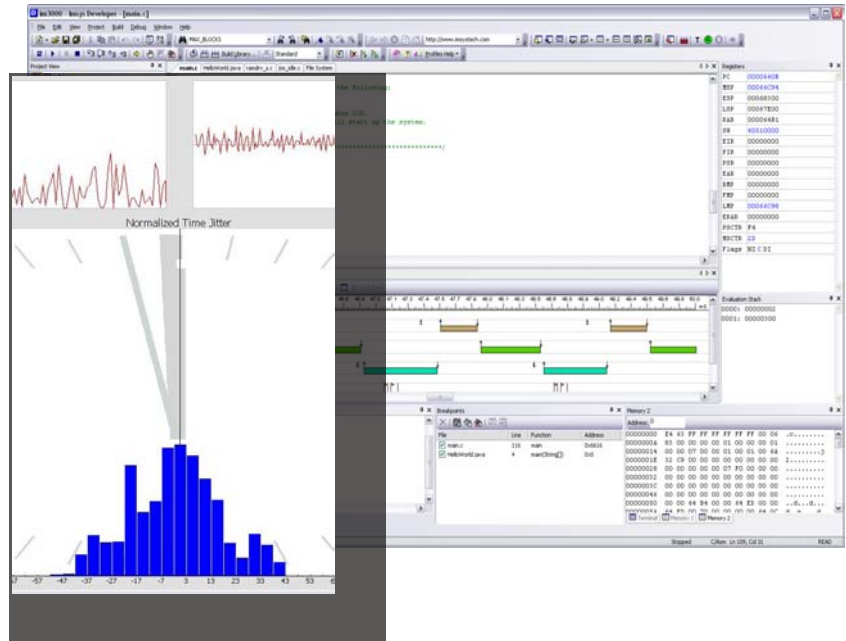
Features

- Ethernet 10/100 auto-sensing PHY with RJ-45 connector
- Three asynchronous serial ports
- SPI port
- Debug port
- PPS and ToD input from GPS or other time source, for Grandmaster mode
- PPS, ToD and frequency output
- Connectors (except RJ45) suitable for flat cable or board-to-board connections
- PC based host development system
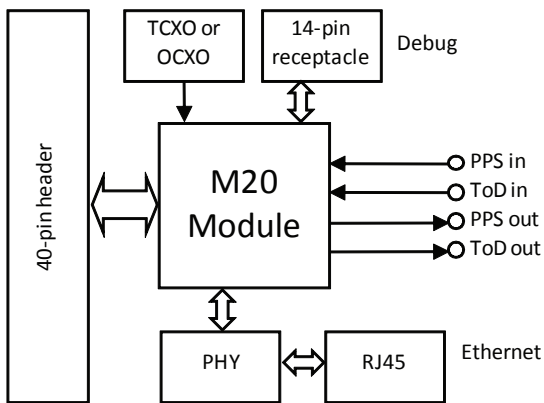- USB connection to target system for debugging and power supply.

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DK4 Development Kit for IEEE1588

Programming and Debugging

- The Developer IDE comes set with a framework of programming tools and the firmware profile for time synchronization applications
- A source code debugging feature and an event analyzer assist the programmer throughout the project
- The software includes the IEEE 1588 protocol software stack with Grandmaster API, and a Loop control filter for the slave application
- Jitter analysis monitor.

Block Diagram

The Development Kit is designed for an optimized IEEE 1588 communication application and the Grandmaster mode. The kit is delivered with an on board TCXO, but can be adapted for different oscillators on-board or using an external fixed frequency oscillator. The kit has an optional input for an external reference (eg. GPS).

A host system interfaces to the board via the SPI port and a separate debug port connects to the development system via the trace adapter.

Technical Specifications

- Processor: Conemtech C34 on a M20 module with a 100-pin FX10 connector, 8 MB SDRAM, 2 MB Flash
- Standard oscillator: voltage-controlled, temperature compensated CFPT-125TS with 0.9 ppm temperature stability (-40 to 85°C)
- Input/Output: 40 pins on connectors support, ToD/PPS input/output on micro coaxial connectors
- Serial interface: three High Speed serial RS232 interfaces (CMOS level)
- Ethernet: one 10/100 Base-T with auto sensing PHY and RJ-45 connector
- Clock frequency: 167 MHz
- Supply Voltage: 3.3 or 5V
- Overall Dimensions: 84 x 55 x 15 mm
- Operating Temperature: 0 – +70°C
- RoHS compliant.

Box Contents

1x P40 – socket board and M20-34 module
1x Developer 7.2, CD for PC station
1x M20-34 firmware profile
1x Trace Adapter
1x USB Cable
4x SMA to micro coax
1x Quick start Guide

Ordering Information

DK4   development kit and design system, one channel, P40 based

spare parts:
P40   assembled OEM board with M20-34
M20-34 processor module with C34

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