DK5 Development Kit for IEEE1588

Applications

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

DK5 Development Kit

The DK5 is a complete kit for the development environment of Conemtech connected embedded controllers where IEEE 1588 is used for time synchronization. The kit is intended for the development of compact Grandmasters, high precision slaves or general ordinary clocks in the IEEE1588 network. It is based on the C34 microcontroller located on an M50-34 subsystem-module.

Utilizing a P50 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 almost 20 Mbit/s, or pass-through of 60 Mbit/s of IP dataflow, while running the IEEE 1588 Protocol software in the background.

The M50-34 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 precisions.

Features

- Two Ethernet 10/100 RJ-45 connectors with auto sensing PHYs
- Second Ethernet also available on MII/RMII connector
- Three asynchronous serial ports
- SPI port
- Debug port
- Three internal oscillator alternatives, one external input
- PPS and ToD input from GPS or other time source, for Grandmaster mode
- PPS and ToD inputs and outputs plus a syntonized frequency output
- Time and Frequency signals available on five SMA coaxial connectors
- PC based host development system
- USB connection to target system for debugging and power supply.

conemtech
connected embedded controllers

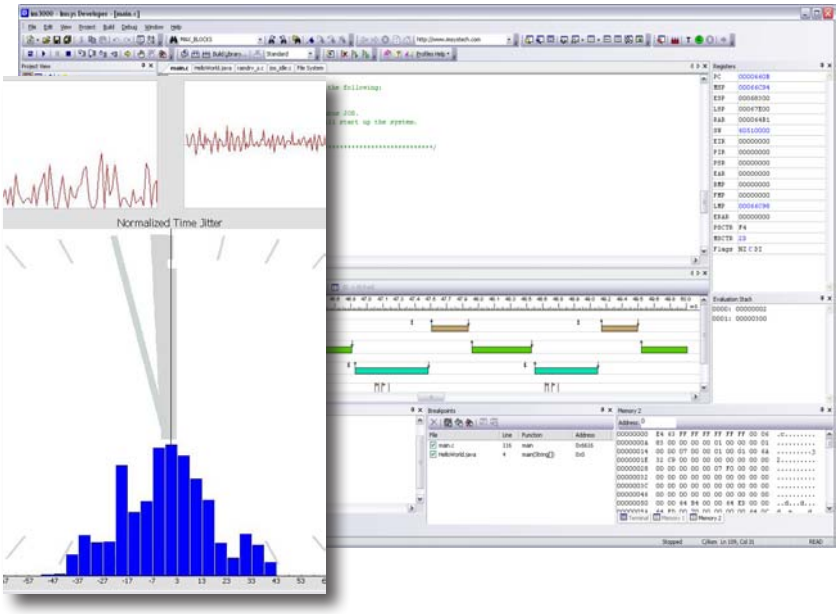
Conemtech AB
Torshamnsgatan 35
SE-164 40 Kista
Sweden

phone: +46 8 750 7850
fax: +46 8 750 7851
info@conemtech.com
www.conemtech.com

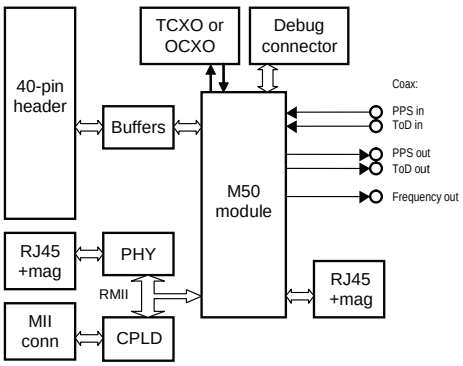
DK5 Development Kit for IEEE1588

Programming and Debugging

- The Developer IDE comes set with a framework of programming tools and the chosen form factor 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 oscillator, but can be adapted for different oscillators: on-module, on-board, external. 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 M50 module, 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, ToD/PPS input/output on coaxial connectors
- Serial interface: three High Speed serial RS232 interfaces (CMOS level)
- Ethernet: two 10/100 Base-T with auto sensing PHYs and RJ-45 connectors, second port also as RMII
- Clock frequency: 150 MHz
- Supply Voltage: 3.3 or 5V
- Overall Dimensions: 100 x 60 x 15 mm
- Operating Temperature: 0 – +70°C
- RoHS compliant.

Box Contents

1x P50 – combined socket board and M50-34 module
1x Developer 7.2, CD for PC station
1x M50-34 firmware profile
1x Trace Adapter
1x USB Cable
1x Quick Start Guide

Ordering Information

DK5 development kit and design system, one channel, P50 base

spare parts:

P50 assembled OEM board with M50-34

 9.10

conemtech
connected embedded controllers

Conemtech AB
Torshamnsgatan 35
SE-164 40 Kista
Sweden

phone: +46 8 750 7850
fax: +46 8 750 7851
info@conemtech.com
www.conemtech.com

DK5 Development Kit