



RapiTime/MPC555 Evaluation Kit

Evaluate state-of-the-art timing analysis technology

- + MPC555 development environment
- + Explore worst-case execution times
- + Identify code on the worst-case path
- + Examine worst-case hotspots
- + Provide code-coverage metrics



Worst-Case Execution Time Analysis

The fundamental problem in developing any embedded real-time system is ensuring that it can perform the required functionality within specific time constraints.

Obtaining accurate information about the longest time a software component can take to run, termed the 'worst-case execution time', is key to ensuring that time constraints are met and that an embedded real-time system will operate correctly.

RapiTime

RapiTime is an analysis toolset that provides a unique solution to the problem of determining worst-case execution times, a solution that works for complex software running on advanced embedded microprocessors.

Analysis Capability

RapiTime produces easy to navigate WCET reports, graphs of execution time variation and colour-coded source highlighting code on the worst-case path and any gaps in testing.

RapiTime can analyse complex embedded software comprising upwards of 50,000 lines of C code. RapiTime supports 8, 16 and 32-bit CPUs including the very latest microprocessors with advanced

hardware features such as data and instruction caches, pipelines and branch prediction units.

RapiTime command line tools can be run in batch mode, seamlessly integrating with industry standard build processes.

RapiTime can also be used with cycle accurate processor simulators aiding hardware - software co-development.

Evaluation Kit

The RapiTime Evaluation Kit provides a complete microprocessor development environment with everything required for cost-effective and efficient evaluation of state-of-the-art timing analysis technology available out of the box.

Evaluation Kit Software

The kit comes complete with all the tools needed to build and analyse the timing behaviour of software components running on the development board.

The CD includes:

- + RapiTime worst-case execution time analysis tool set complete with full user documentation
- + RapiTime evaluation licence
- + GNU C compiler and debugger
- + Serial boot-loader: enables code compiled on the hostPC to be downloaded to the target microprocessor
- + Test driver program: downloads test vectors to the target microprocessor and collects timing traces



Example applications

The example applications can be used initially to learn about worst-case execution time analysis and the facilities that RapiTime provides. These examples can then be modified to call your own software components, providing the capability to evaluate the effectiveness of RapiTime using proprietary code.

Evaluation Kit Hardware

The RapiTime Evaluation Kit is based on the phy-CORE MPC555 development board with MPC555 single board computer module.

- + Freescale 32-bit MPC555 embedded controller
- + 128Kbyte SRAM
- + 512K byte Flash
- + 2x CAN interfaces
- + 2x RS-232 interfaces
- + BDM interface

The Evaluation Kit requires a host PC running Microsoft® Windows XP/2000, with 200MB of free disk space, 512MB RAM, and a spare USB and parallel port.

