



An introduction to
RapidiTTy™ MCU 2.3

October 2009

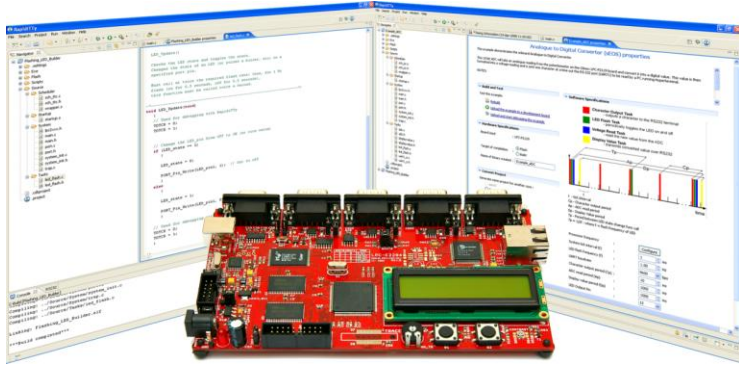
Rapid development of reliable embedded systems

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Overview of this presentation

- At TTE Systems, we develop the RapidITTy™ family of software development tools.
- Based on Time-Triggered (TT) technology, RapidITTy™ tools simplify, automate and accelerate the development of embedded systems that are both reliable and resource efficient.
- RapidITTy™ tools target microcontrollers (MCUs), field-programmable gate arrays (FPGAs) and 'PC' (x86) hardware.
- **This presentation provides an overview of RapidITTy™ MCU**
- Other members of the RapidITTy™ family provide similar facilities, for x86 ("embedded PC") and FPGA targets.

RapidiTTY™ MCU: Overview [1]



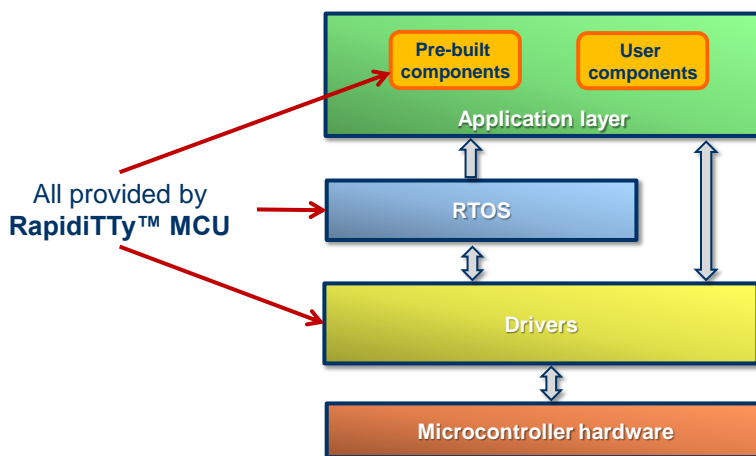
- TTE Builder™ engine for rapid system design and code generation
- Detailed timing analysis
- Integrated RTOS collection (all royalty free)
- Integrated compiler & debugger
- Time-triggered technology

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RapidiTTY™ MCU: Overview [2]



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RapidiTTY™ MCU: Overview [3]

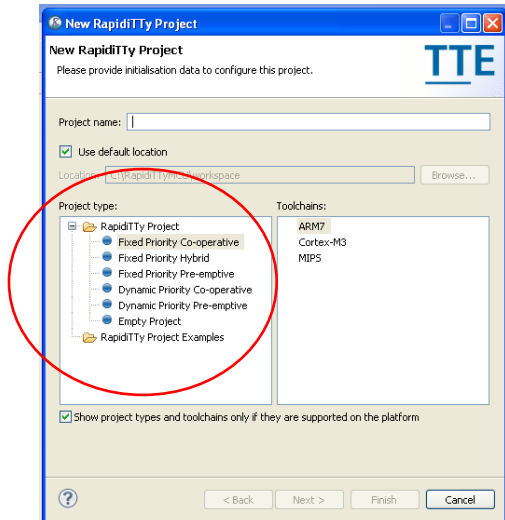
- RapidiTTY™ MCU allows you to implement software for reliable embedded systems very quickly:
 - Choose your RTOS
 - Use TTE Builder™ to customise a range of pre-built SW components to match the needs of your application
 - Create your own user components (from templates provided)
 - Link all the components together
 - Perform a timing analysis to check your design
 - Ship it!

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Options for thin RTOS



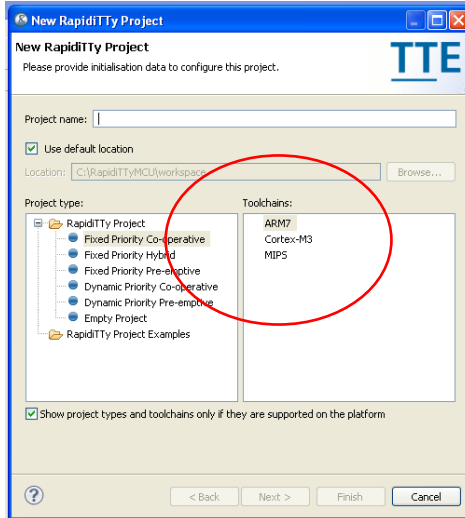
- Task properties
 - Co-operative
 - Pre-emptive
 - Hybrid
- Scheduling algorithm
 - Fixed priority
 - Dynamic priority

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Options for toolchains (and targets)



- ARM7 toolchain
 - LPC2xxx targets
- Cortex-M3 toolchain
 - STM32 targets
 - LPC17xx targets
- MIPS toolchain
 - TTE32-SM3 targets

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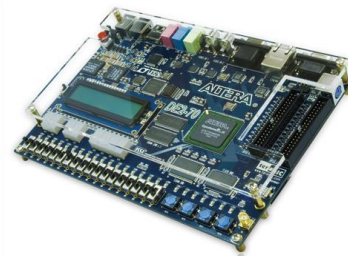
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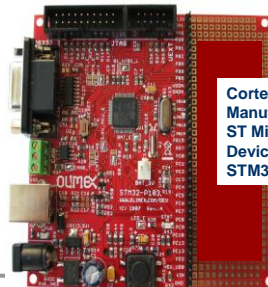
Options for toolchains (and targets)



ARM7
Manufacturer: NXP
Device: LPC2378



MIPS
Manufacturer [soft-microcontroller]:
TTE Systems
Device: TTE32-SM3



Cortex-M3
Manufacturer:
ST Microelectronics
Device:
STM32F103RB

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RapidiTTY™ MCU: Adding components

You can select from a range of pre-built, tested components, to get the framework for your application in place very quickly ...

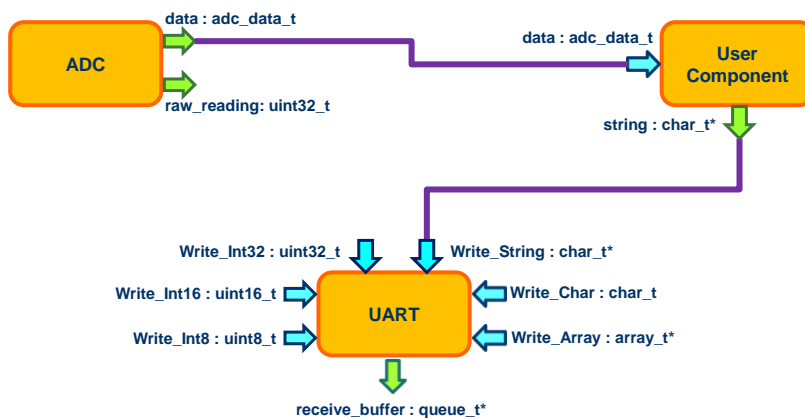
... and you can then add your own user-defined components, using the templates provided. This makes it easy to re-use your existing code in the RapidiTTY™ environment.

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RapidiTTY™ MCU: It's easy to link the components



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RapidiTTY™ MCU: Timing analysis

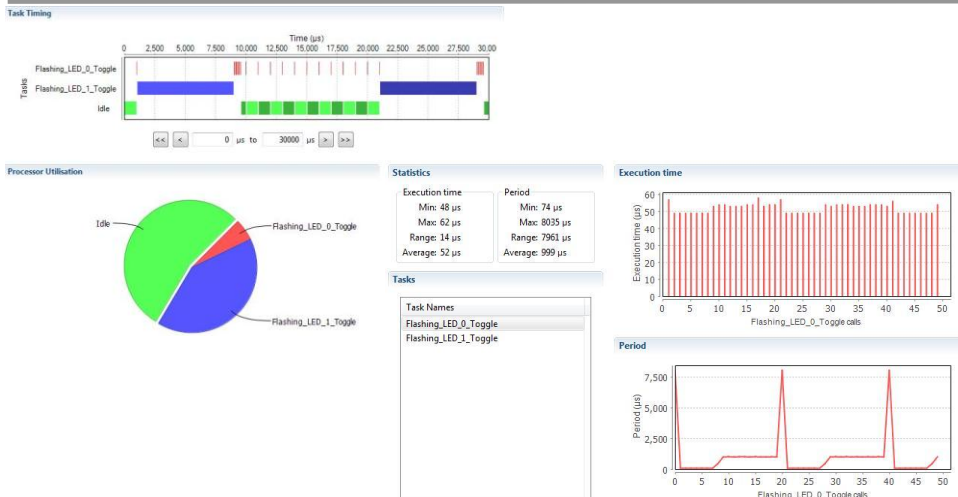
- During system development and testing, RapidiTTY™ MCU tools provide full support for measurement-based timing analysis
- This allows you to obtain detailed timing measurements from **your code**, running on **your hardware**, with minimal effort.
- The tools allow the recording of accurate timing data (for example, worst-case execution time for all tasks plus task jitter and task period information).
- The recording process is straightforward and fully integrated into the development and debug process.
- Reports can also be exported in various forms, to simplify the task of documenting your system

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RapidiTTY™ MCU: Sample timing report

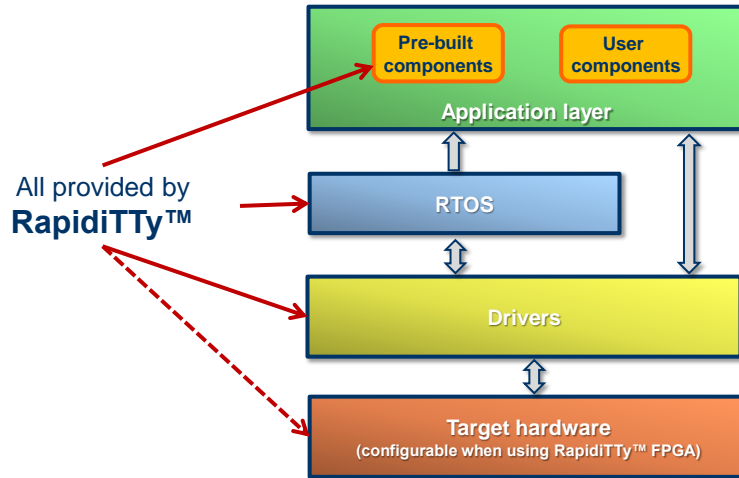


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RapidiTTy™ family: Overview



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RapidiTTy™ MCU: Further information

- RapidiTTy™ MCU 2.3 "Getting Started Guide"
- RapidiTTy™ MCU 2.3 "Tutorial (LPC 2378)"
- TTE32-SM3 "Datasheet and programming guide"

- **Available from:**

<http://www.tte-systems.com/downloads/>

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