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RTX51 Tiny Introduction

RTX51 Tiny is a small real-time kernel designed for single-chip applications where code size is the most important factor. The RTX51 Tiny kernel requires only 900 bytes of code space and is well-suited for applications that don't need RTOS features like messaging, semaphores, and memory pool management. RTX51 Tiny:

- is designed for single-chip applications where no **XDATA** is available. However, it may be used with any 8051 target system.
- supports all memory models of the C51 Compiler (SMALL, COMPACT, and LARGE). Operating system variables and task stacks are stored in internal DATA/IDATA memory.
- performs round-robin and cooperative multitasking only. Preemptive task switching and task priorities are not supported.
- uses Timer 0 for the operating system timer tick. No other hardware resources are used.
- is included in the [PK51 Professional Developer's Kit](#).
- is royalty-free.

Highlights

For a comprehensive list of features refer to the RTX51 Tiny Feature Table. Here are the highlights:

- RTX51 tasks are integrated into the C51 C Compiler language. The following example shows how tasks are declared:

```
void display_task (void) _task_ 1
{
}
```
- Kernel routines are provided by a library that is automatically included by the linker. All you must do is specify the **RTX51TNY** directive.
- Interrupts may be used to trigger tasks or to start standard C51 interrupt functions.
- RTX51 Tiny supports all C51 Compiler memory models.
- RTX51 Tiny supports code banking programs.

RTX51 Tiny Feature Table

Key: ● Included ○ Not included		RTX51 Tiny
Kernel Source Code		●
Code Banking Support		●
Multitasking		
Round-Robin		●
Preemptive		○
Cooperative		●
Task Specifications		
Priority Levels		1
Defined Tasks (max)		16
Active Tasks (max)		16
Interrupt Latency (Cycles)		< 20
Standard Task Switch Time (Cycles)		100 – 700
Memory Requirements		
Code Space		900 bytes
Data Space		7 bytes
Stack (IDATA) Space		3 bytes per task
XDATA Space		0 bytes
Timers/Signals/Events		
Timeouts		●
Intervals		●
Signals		●
System Clock Divisor		1,000 – 65,535

Documentation

The RTX51 Tiny user's guide is available [online](#).