# 國立交通大學

# 電機與控制工程學系

# 碩士論文

DSP系統之即時多工核心設計與實現

Portable Multitasking Real-Time Kernel Design and Implementation on DSP Systems

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# DSP 系統之即時多工核心設計與實現

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## 摘　　要

本論文主旨在發展一套可移植且模組化的即時多工核心系統，並實際實作於 TI 320C24x 的 DSP 系統上。利用核心系統所提供的硬體資訊可被抽象化控制程式的寫作與發展，便可將重心者重在演算法與控制法則，進而可形成控制軟體 IP(Intellectual Property)。可時控制系統亦易於轉移至不同的平台。論文可區分爲兩部分，即時多工作業系統理論及系統實作說明，附錄中並有一電動機車的範例系統。

# Portable Multitasking Real-Time Kernel Design and Implementation on DSP Systems

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**Abstract**

In this thesis, a portable and modularized multi-tasking real-time kernel is developed and implemented on the TI 320C24x DSP system. By using multi-tasking real-time kernel, the detail hardware information will be abstracted. Control system developer can focus his/her mind on control algorithm and control law. Further more, this control system can be an intellectual property and can be ported to other hardware platform easily. The thesis is divided into two parts: multi-tasking real-time operating system theorem and system implementation description. There also is an example of electrical motorcycle control system in the appendix.