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Author Cheng Kuang Chih
Author's Email Address No Public.
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Abstract
Because of the rapid development of network communication, the embedded system is developing a penchant for encompassing network communication. So as to a modernized embedded kernel, the driver of the network has already been one of the indispensable ability. In this thesis, we had implemented one highly modularized kernel which can be dynamically uploaded and downloaded as required. In the kernel, we also development a highly efficient TCP/UDP stack module, that use a zero-copy technique. It enables the system to the best transmission efficiency and is suitable for various network environments.
Using current embedded kernels, they are incapable of switching kernel components off-line. In this thesis, we propose a new kernel architecture. Under this architecture, each kernel module can be remotely online upload and download. With the abilities, our system achieves many features such as online upgrade, software reuse, hardware reuse, load balance and so forth which have no possible to be accomplished on traditional systems. Furthermore, as our merit of online configurable, the kernel modules are highly compatible to most target systems. By configuring with an on-line manner, the proposed kernel is adaptable to most target systems. It is convenient to modify system software, and making more competitive to the product market.
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