Adaptive Partitioning

Secure. Real Time. Guaranteed. The QNX® Neutrino® RTOS is the only embedded operating system to provide secure, guaranteed real time without compromising performance and flexibility. Using our patent-pending adaptive partitioning technology, you can guarantee real time for your applications, contain threats and protect your system. Adaptive partitioning provides a simple, reliable solution for systems that are heavily processor intensive and where task starvation is a design concern.

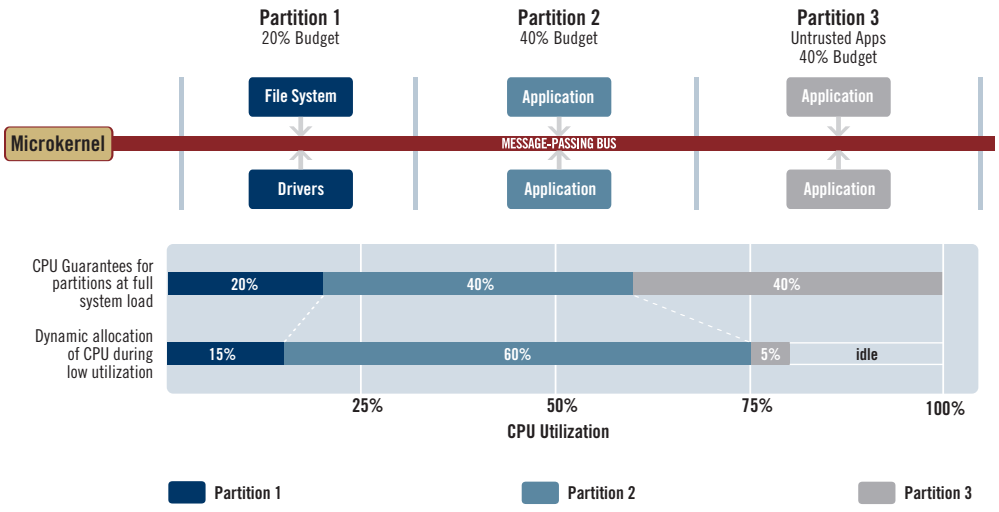
Solution Highlights

- **Build secure compartments, or partitions, around your applications to protect your system from external threats**
- **Achieve the highest realtime performance — dynamically reallocate idle CPU time from partitions that are underutilized to partitions that can benefit from extra processing time**
- **Guarantee CPU cycles for critical system functions**
- **Deploy adaptive partitioning without changing your code — applications and system services can be simply launched into partitions**

Build Secure Compartments

Almost all embedded systems today are network connected devices that can be extended with untrusted add-on applications and content. If appropriate measures are not included by design, security and availability of your product can be compromised. Rogue software can prevent your critical system functions from running by starving them of CPU time. To address this, QNX adaptive partitioning allows you to construct compartments around groups of applications and dedicate a portion of CPU time to each compartment. For added security, the QNX Neutrino RTOS protects the process memory and resources of both applications and system-level services.

Build Secure Compartments for Your Software Using Adaptive Partitioning



Patent-pending adaptive partitioning by QNX Software Systems enforces partition budgets when the system is loaded and dynamically allocates free CPU cycles during periods of low processor utilization.

Maximize Realtime Performance

Unlike static partitioning approaches with cyclical scheduling, adaptive partitioning recognizes that CPU utilization is sporadic and systems can often have idle time available. With adaptive partitioning, this idle time is not wasted. Since unused CPU cycles from one partition can be dynamically reallocated to other partitions, overall CPU utilization is maximized. Standard priority-based scheduling is in force when the system isn't under full load or attack. Threads in one partition can access any available CPU cycles in any other partition. This yields a more responsive product and reduces cost by eliminating over-engineering.

Guarantee Real Time

Task or process starvation is a fundamental concern for any embedded system. Services provided by lower-priority threads — including diagnostic services that protect the system from software faults or denial-of-service attacks — can be starved of CPU cycles for unbounded periods of time, compromising system availability. Adaptive partitioning guarantees that all partitions get their budgeted share of CPU time to ensure your system runs correctly — under all conditions.

Use Adaptive Partitioning without Code Modification

Adaptive partitioning uses the standard POSIX programming model so you can use the same, familiar design, programming and debugging techniques as in any embedded system.

If you already use QNX Neutrino, adaptive partitioning does not require any modification of your code. You can introduce adaptive partitioning by simply defining the partition budgets and deciding which applications and/or threads reside in each partition. With QNX adaptive partitioning, applications and system services can simply be launched into the appropriate partition.

What's in the Kit

- **Adaptive Partitioning enabled Neutrino kernel** — For all supported processor architectures, enabling you to build embedded images that provide adaptive partitions.
- **Instrumented Adaptive Partitioning enabled Neutrino kernel** — System tracing capability lets you visualize adaptive partitioning events and regular code behavior on your hardware
- **Right to manufacture** — Royalty free license to distribute QNX adaptive partitioning technology for use in OEM devices in association with licensed copies of the QNX Neutrino RTOS

System Requirements

- QNX Momentics development suite Professional Edition (PE) v6.3 SP1 or SP2 (development)
- QNX Neutrino RTOS v6.3 (runtime)
- Supported processor with board support package
  - Please visit www.qnx.com for a list of supported processors and board support packages.

About QNX Software Systems

QNX Software Systems, a Harman International company (NYSE: HAR), is the industry leader in realtime, embedded OS technology. The component-based architectures of the QNX Neutrino RTOS and QNX Momentics development suite together provide the industry's most reliable and scalable framework for building innovative, high-performance embedded systems. Global leaders, such as Cisco, DaimlerChrysler, General Electric, Lockheed Martin, and Siemens depend on QNX technology for network routers, medical instruments, vehicle telematics units, security and defense systems, industrial robotics, and other mission- or life-critical applications. Founded in 1980, QNX Software Systems is headquartered in Ottawa, Canada, and distributes products in over 100 countries worldwide.

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