2

Memory Model

2.1 Introduction

A processor may support any combination of memory models ranging from pure physical addressing to complex demand paged virtual memory systems. **RTEMS** supports a flat memory model which ranges contiguously over the processor's allowable address space. **RTEMS** does not support segmentation or virtual memory of any kind. The appropriate memory model for **RTEMS** provided by the targetted processor and related characteristics of that model are described in this chapter.

2.2 Flat Memory Model

The MC68020 supports a flat 32-bit address space with addresses ranging from 0x00000000 to 0xFFFFFFFF (4 gigabytes). Each address is represented by a 32-bit value and is byte addressable. The address may be used to reference a single byte, word (2-bytes), or long word (4 bytes). Memory accesses within this address space are performed in big endian fashion by the MC68020.

Without external hardware support the MC68020 does not support virtual memory or segmentation. The MC68851 Paged Memory Management Unit coprocessor is typically used to preform address translations for these systems. **RTEMS** does not support the MC68851 PMMU, therefore, virtual memory or segmentation systems involving the MC68020 are not supported.