Virtual address space

| 0x0 | 0x80000000 | 0xFFFFFFFF |

| User program (text/data/stack) | Kernel |

Virtual address space

0x0   0x80000000   0xFFFFFFFF

| kuseg | kseg0 | kseg1 | kseg2 |

Physical address space

Unavailable. This system only has 1 GB of memory
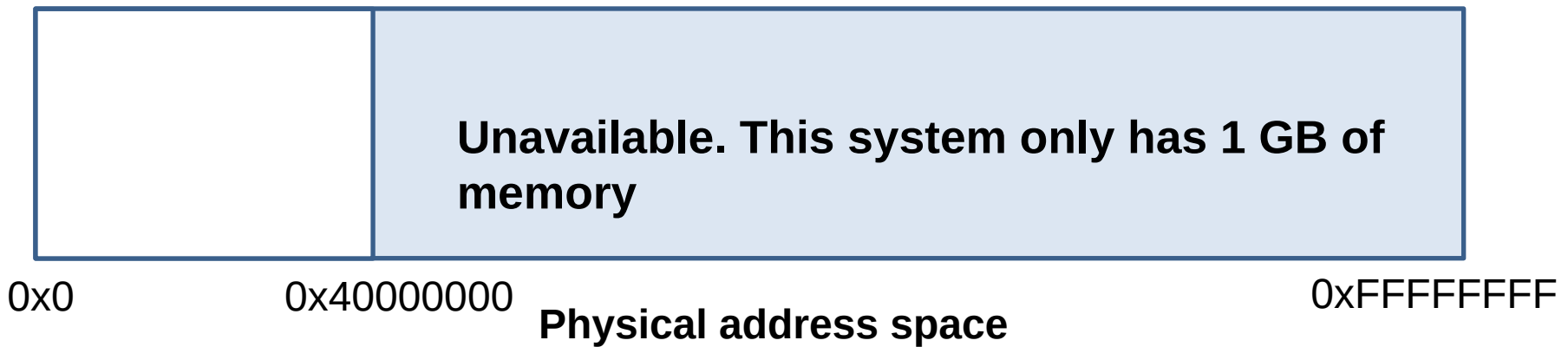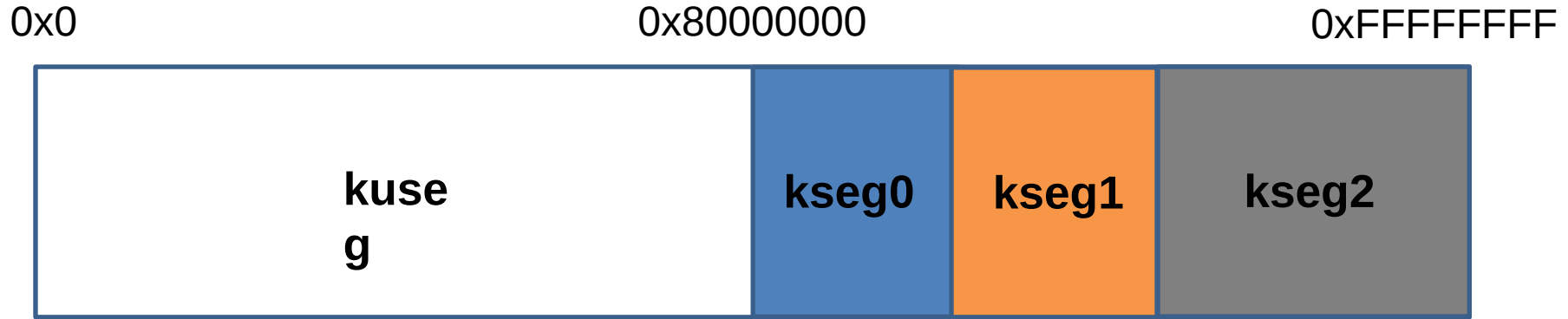
0x0   0x40000000   0xFFFFFFFF
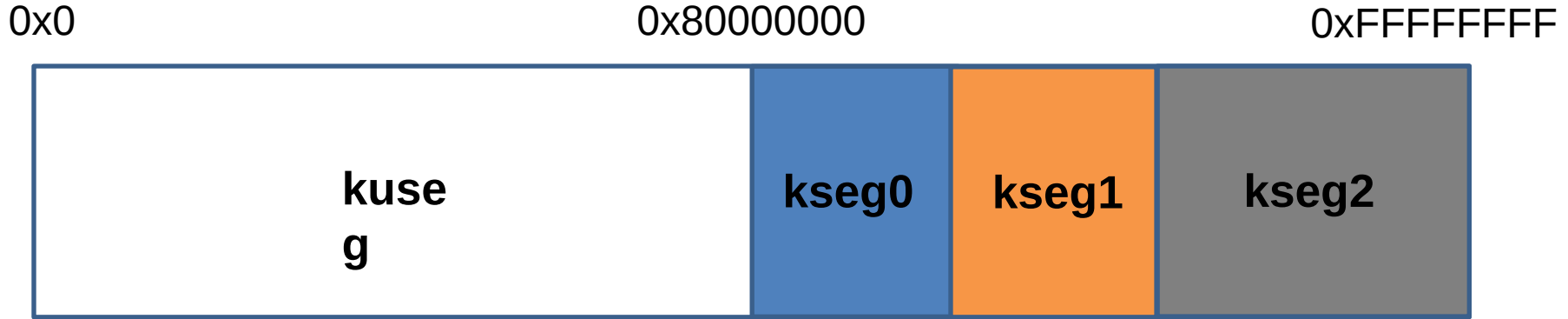
Virtual address space

0x0   0x80000000   0xFFFFFFFF

kuseg	kseg0	kseg1	kseg2

Physical memory is partitioned into frames and managed by the kernel using a coremap.

Unavailable. This system only has 1 GB of memory

0x0   0x40000000   0xFFFFFFFF

Physical address space
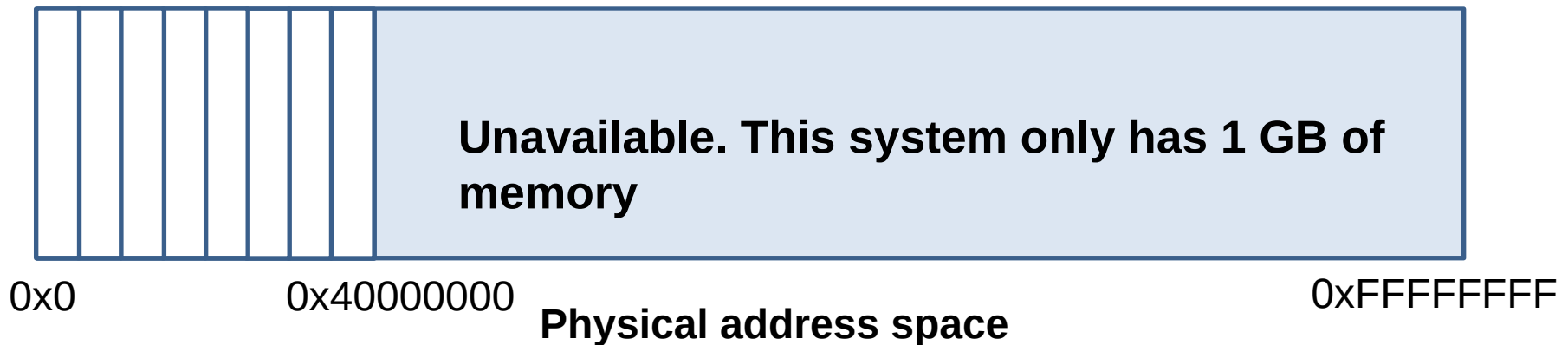
Virtual address space

0x0　　　　　　　　　　0x80000000　　　　　　　　0xFFFFFFFF

| kuseg | kseg0 | kseg1 | kseg2 |
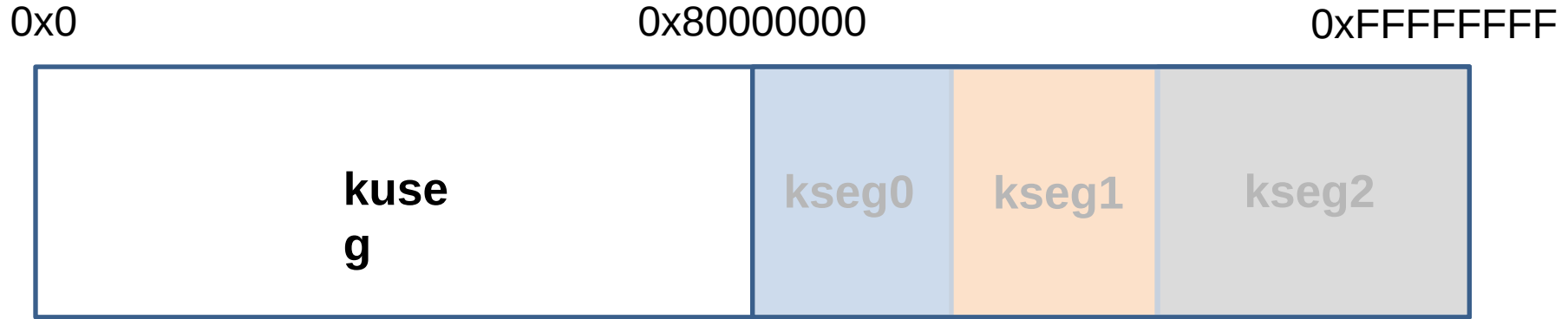
TLB is used to translate virtual addresses in kuseg to physical address

Unavailable. This system only has 1 GB of memory

0x0　　　　　　0x40000000　　　　　　　　　　0xFFFFFFFF

Physical address space

Virtual address space

0x0   0x80000000   0xFFFFFFFF

kseg0   **kseg1**   **kseg2**
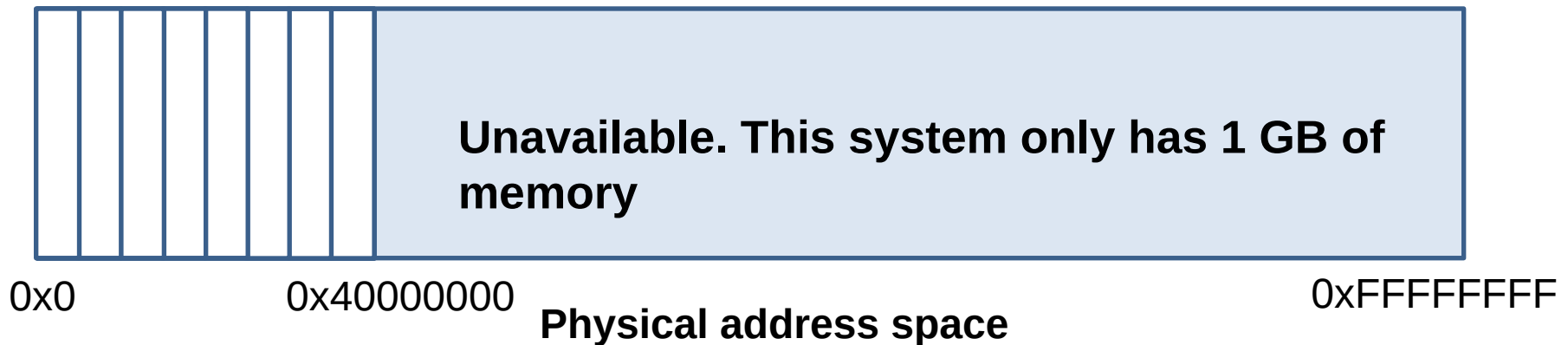
Process 1

Page to frame mapping will be different for each process. Mapping controlled by the kernel.

Unavailable. This system only has 1 GB of memory

0x0   0x40000000   0xFFFFFFFF

Physical address space

Virtual address space

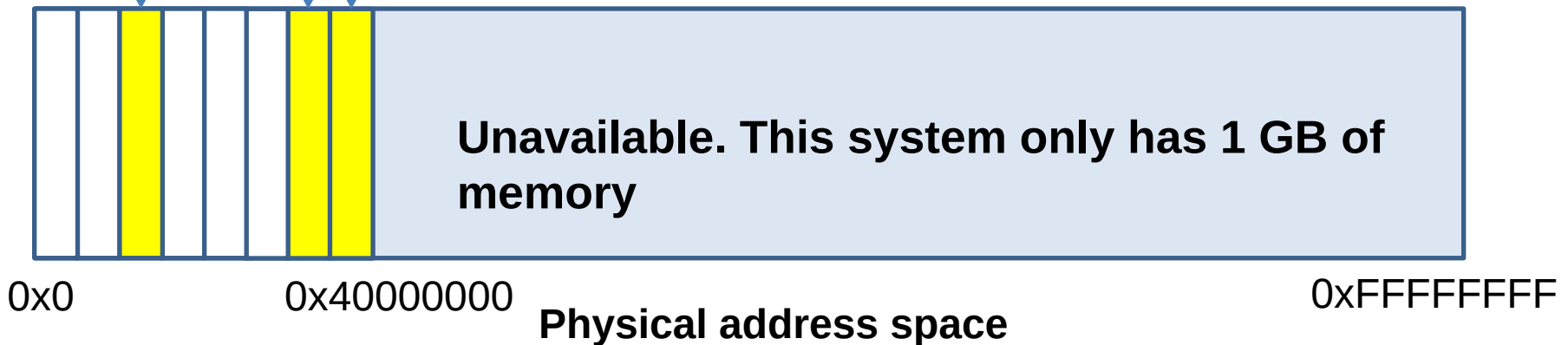0x0   0x80000000   0xFFFFFFFF

kseg0   kseg1   kseg2

Process 2

Page to frame mapping will be
different for each process.
Mapping controlled by the
kernel.

**Unavailable. This system only has 1 GB of
memory**

0x0   0x40000000   0xFFFFFFFF
Physical address space

Virtual address space

0x0   0x80000000   0xFFFFFFFF

| kuseg | **kseg0** | kseg1 | kseg2 |

kseg0 is mapped to the first 512 MB of physical memory.
Physical address = Virtual address – 0x80000000

Unavailable. This system only has 1 GB of memory

0x40000000   0xFFFFFFFF

Physical address space

Kernel code and data structures
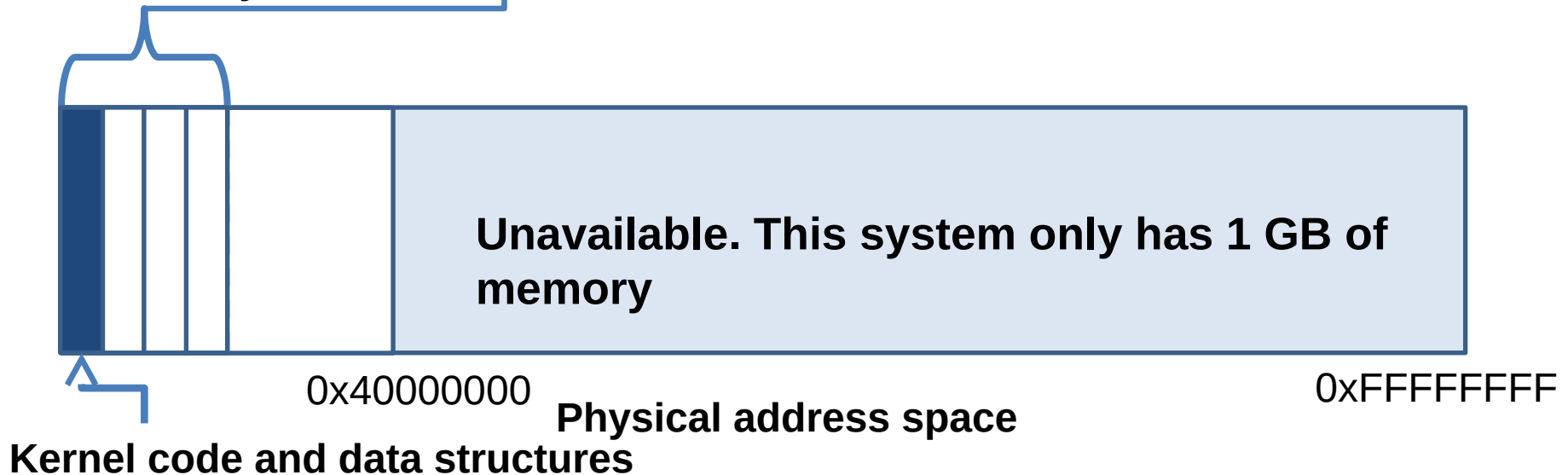
Virtual address space

0x0   0x80000000   0xFFFFFFFF

kuse   kseg0   kseg1   kseg2

The kernel can directly access the first 512 MB of physical memory by using virtual addresses in kseg0.

It can also access user data by using virtual addresses in kuseg. The TLB is used to translate user virtual addresses.

ory.

Unavailable. This system only has 1 GB of memory

0x40000000   **Physical address space**   0xFFFFFFFF

Kernel code and data structures

Virtual address space

0x0   0x80000000   0xFFFFFFFF

| kuseg | kseg0 | **kseg1** | kseg2 |

kseg1 is also mapped to the first 512 MB of physical mem.

Segment is uncached. Used to communicate with devices.
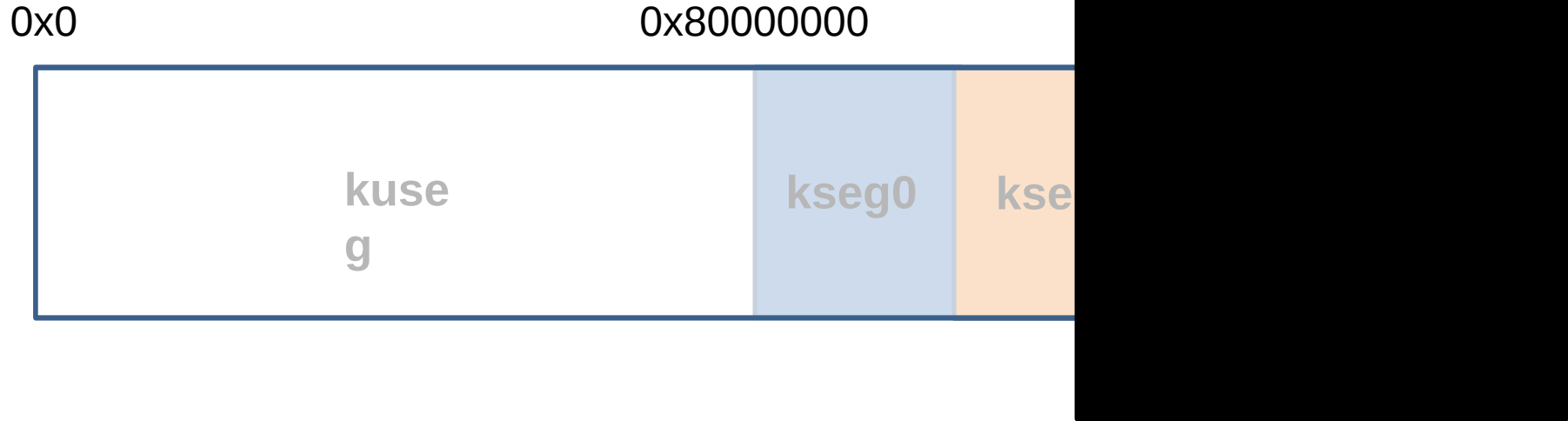
Physical address = Virtual address – 0xA0000000

Unavailable. This system only has 1 GB of memory

0x0   0x40000000   0xFFFFFFFF

Physical address space

Virtual address space

0x0   0x80000000

kuse g	kseg0	kse	

Don't worry about kseg2

	Unavailable. This system only has 1 GB of memory

0x0   0x40000000   0xFFFFFFFF

Physical address space