

Chapter-1

Introduction to Image Processing

1. Consider a color 1024×1024 image. If this image is transmitted across a channel of 2 Mbps, what will be the transmission time?

Given

Size of the image = 1024×1024

Bit depth = 24 bits (8 bits per each R, G and B channels)

Storage requirement = $1024 \times 1024 \times 24 = 25165824$ bits =
3145728 bytes.

Solution

Transmission time = $25165824 / 2 \times 10^6 = 12.58$ seconds.

2. What is the storage requirement of 1024×1024 , 8 level grey level image.

Solution:

$1024 \times 1024 \times 8 = 8388608$ bits

= 1048576 bytes

= 1048.576 KB (Assuming 1000 bytes = 1 KB)