UNIVERSIDAD AUTÓNOMA "TOMAS FRÍAS" CARRERA DE INGENIERÍA DE SISTEMAS				
Materia:	Arquitectura de computadoras (SIS-522)			
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Tema:

R1. 6M x 8

$6 \times 1024^{2} \times 8 = 50\,331\,648$ bits ✓

R2. 10G x 16

$6 \times 1024^{3} \times 16 = 1,0308 \times 10^{11}$ bits ✓

R3. 20T x 32

$20 \times 1024^{4} \times 32 = 7,037 \times 10^{14}$ bits ✓

R4 128K x 4

$128 \times 1024 \times 4 = 524288$ bits ✓

R5. 1M x 16

$1 \times 1024^{2} \times 16 = 16\,777\,216$ bits ✓

R6 5G x 64

$5 \times 1024^{3} \times 4 = 2,147 \times 10^{10}$ bits ✓

R7. 30T x 8

$30 \times 1024^{4} \times 8 = 2,639 \times 10^{14}$ bits ✓

R8. 256 M x 32

$256 \times 1024^{2} \times 32 = 8\,589\,934\,592$ bits ✓

R9. 2K x 128

$2 \times 1024 \times 128 = 262\,144$ bits ✓

R10. 15G x 16

$15 \times 1024^{3} \times 16 = 2,577 \times 10^{11}$ bits ✓

R11 $n = 32 \rightarrow 2^{32} = 4\,294\,967\,296$ localidades de memoria ✓

R12. $n = 64 \rightarrow 2^{64} = 1,845 \times 10^{19}$ localidades ✓

Tema:

R13 $n = 128 \rightarrow 2^{128} = 3,403 \times 10^{38}$ lx de mem ✓

R14 $n = 256 \rightarrow 2^{256} = 1,158 \times 10^{77}$ lx de mem ✓

R15 $n = 512 \rightarrow 2^{512} = 1,341 \times 10^{154}$ lx de mem ✓

R16 $n = 1024 \rightarrow 2^{1024} = 1,798 \times 10^{308}$ lx de mem ✓

R17 $n = 2048 \rightarrow 2^{2048} = 3,232 \times 10^{616}$ lx de mem ✓

R18 $n = 4096 \rightarrow 2^{4096} = 1,044 \times 10^{1233}$ lx de mem ✓

R19 $n = 8192 \rightarrow 2^{8192} = 1,091 \times 10^{2466}$ lx de mem ✓

R20 $n = 16384 \rightarrow 2^{16384} = 1,189 \times 10^{4932}$ lx de mem ✓

R21 # de localidades = 512 M → $512 \times 1024^2 = 536870912$

$n = \frac{\ln 536870912}{\ln 2} = 29$ » bits de dir ✓

R22. $n = ?$ # lx = 1T = $1024^4 = 1,099 \times 10^{12}$

$n = \frac{\ln 1T}{\ln 2} = 39,99 \approx 40$ » bits de dir ✓

R23 $n = ?$ # lx = 2G = $2 \times 1024^3 = 2147483648$

$n = \frac{\ln 2G}{\ln 2} = 31$ bits de dir » ✓

R24. $n = ?$ # lx = 64K = $64 \times 1024 = 65536$

$n = \frac{\ln 64K}{\ln 2} = 16$ bits de dir » ✓

R25 $n = ?$ # lx = 4T = $4 \times 1024^4 = 4,398 \times 10^{12}$

$n = \frac{\ln 4T}{\ln 2} = 42$ bits de dir » ✓

R26. $n=?$ $\#lvs = 128M = 128 \times 1024^2 = 134217728$

$n = \frac{\ln 128M}{\ln 2} = 27$ bits de dir ✓

R27 $n=?$ $\#lvs = 10G = 10 \times 1024^3 = 1,074 \times 10^{10}$

$n = \frac{\ln 10G}{\ln 2} = 33,3 \approx 33$ bits de dir ✓

R28 $n=?$ $\#lvs = 256T = 256 \times 1024^4 = 2,815 \times 10^{14}$

$n = \frac{\ln 256T}{\ln 2} = 48$ bits de dir ✓

R29 $n=?$ $\#lvs = 8M = 8 \times 1024^2 = 8388608$

$n = \frac{\ln 8M}{\ln 2} = 23$ bits de dir ✓

R30 $n=?$ $\#lvs = 32G = 32 \times 1024^3 = 3,436 \times 10^{10}$

$n = \frac{\ln 32G}{\ln 2} = 35$ bits de dir ✓

R31 $\#bits = 2G \times 8 = 2 \times 1024^3 \times 8 = 1,718 \times 10^{10}$ bits

$\frac{1,718 \times 10^{10}}{10^9} = 17,18$ Gb ≈ 17,1 gigabits ✗

$1,718 \times 10^{10} b \times \frac{1 Gb}{10^9 b} = ?$

R32 $\#bits = 10T \times 16 = 10 \times 1024^4 \times 16 = 1,759 \times 10^{14}$ b

$\frac{1,759 \times 10^{14}}{10^9} \Rightarrow 1,759 \times 10^{14} b \times \frac{1 G}{10^9 b} = 175921,0604$ Gb ✗ ≈ gigas

R33 $\#bits = 128M \times 4 = 128 \times 1024^2 \times 4 = 536870912$ b

$536870912 b \times \frac{1 byte}{8 b} \times \frac{1 GB}{1024^3 byte} = 0,0625$ GB ✓

≈ gigas

R34. # bits = 1K x 32 → 1024 x 32 = 32768 bits

$32768\ bits \times \frac{1\ MB}{10^6\ bits} = 0,0328$ Megabits ✗

R35 # bits = 512G x 16 → $512 \times 1024^3 \times 16 = 8,796 \times 10^{12}$ bits ✓

$8,796 \times 10^{12}\ bits \times \frac{1\ byte}{8\ bits} \times \frac{1\ MB}{1024^2\ bytes} = 1048576$ MB ✗

megabytes

R36 # bits = 4T x 2 = $4 \times 1024^4 \times 2 = 8,796 \times 10^{12}$ bits

$8,796 \times 10^{12}\ bits \times \frac{1\ Gb}{10^3\ bits} = 8796,093$ Gb ✗ gigabits

R37 # bits = 64M x 64 = $64 \times 1024^2 \times 64 = 4294967296$ bits

$4294967296\ bits \times \frac{1\ Tb}{10^{12}\ bits} = 4,295 \times 10^{-3}$ Tb ✗ Terabits

R38 # bits = 64M x 64 = $64 \times 1024^2 \times 64 = 4294967296$ bits

$4294967296\ bits \times \frac{1\ byte}{8\ bits} \times \frac{1\ TB}{1024^4\ bytes} = 4,883 \times 10^{-4}$ TB ✗

Terabytes

R39 # bits = 64M x 64 = $64 \times 1024^2 \times 64 = 4294967296$ bits

$4294967296\ bits \times \frac{1\ Kb}{10^3\ bits} = 4294967,296$ Kb ✗ Kilobits

R40 # bits = 64M x 64 = $64 \times 1024^2 \times 64 = 4294967296$ bits

$4294967296\ bits \times \frac{1\ byte}{8\ bits} \times \frac{1\ KB}{1024\ bits} = 524288$ KB ✓ Kibibytes