


<u>UNIVERSIDAD AUTÓNOMA “TOMAS FRÍAS”</u> <u>CARRERA DE INGENIERÍA DE SISTEMAS</u>					
Materia:		Arquitectura de computadoras (SIS-522)			
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$$R1. \quad 6M \times 8 \\ 6 \times 1024^{2 \rightarrow M} \times 8 = 50'331.648 \text{ bits}$$

$$R2. \quad 10G \times 16 \\ 6 \times 1024^{3 \rightarrow G} \times 16 = 1,0308 \times 10^{11} \text{ bits}$$

$$R3. \quad 20T \times 32 \\ 20 \times 1024^{4 \rightarrow T} \times 32 = 7,037 \times 10^{14} \text{ bits}$$

$$R4. \quad 428K \times 4 \\ 128 \times 1024^{2 \rightarrow K} \times 4 = 52'4288 \text{ bits}$$

$$R5. \quad 1M \times 16 \\ 1 \times 1024^{2 \rightarrow M} \times 16 = 16'777.216 \text{ bits}$$

$$R6. \quad 5G \times 64 \\ 5 \times 1024^{3 \rightarrow G} \times 4 = 2,147 \times 10^{10} \text{ bits}$$

$$R7. \quad 30T \times 8 \\ 30 \times 1024^{4 \rightarrow T} \times 8 = 2,639 \times 10^{14} \text{ bits}$$

$$R8. \quad 256M \times 32 \\ 256 \times 1024^{2 \rightarrow M} \times 32 = 8'989934.592 \text{ bits}$$

$$R9. \quad 2K \times 128 \\ 2 \times 1024^{2 \rightarrow K} \times 128 = 262'144 \text{ bits}$$

$$R10. \quad 15G \times 16 \\ 15 \times 1024^{3 \rightarrow G} \times 16 = 2,577 \times 10^{11} \text{ bits}$$

$$R11. \quad n=32 \rightarrow 2^{32} = 4294'967296 \text{ localidades de memoria}$$

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

$$R13 \quad n=128 \rightarrow 2^{128} = 3,403 \times 10^{38} \text{ loc de mem}$$

$$R14 \quad n=256 \rightarrow 2^{256} = 1,158 \times 10^{77} \text{ loc de mem}$$

$$R15 \quad n=512 \rightarrow 2^{512} = 1,341 \times 10^{154} \text{ loc de mem}$$

$$R16 \quad n=1024 \rightarrow 2^{1024} = 1,792 \times 10^{308} \text{ loc de mem}$$

$$R17 \quad n=2048 \rightarrow 2^{2048} = 3,232 \times 10^{616} \text{ loc de mem}$$

$$R18 \quad n=4096 \rightarrow 2^{4096} = 1,094 \times 10^{1233} \text{ loc de mem}$$

$$R19 \quad n=8192 \rightarrow 2^{8192} = 1,091 \times 10^{2466} \text{ loc de mem}$$

$$R20 \quad n=16384 \rightarrow 2^{16384} = 1,189 \times 10^{4932} \text{ loc de mem}$$

$$R21 \quad \# \text{ de localidades} = 512 \text{ M} \rightarrow 512 \times 1024^2 = 536870912$$

$$n = \frac{\ln 536870912}{\ln 2} = 29 \gg \text{línes de di}$$

$$R22 \quad n=? \quad \# \text{ loc} = 1T = 1024^4 = 1,099 \times 10^{12}$$

$$n = \frac{\ln 1T}{\ln 2} = 39,99 \approx 40 \gg \text{línes de di}$$

$$R23 \quad n=? \quad \# \text{ loc} = 2G = 2 \times 1024^3 = 2147483648$$

$$n = \frac{\ln 2G}{\ln 2} = 31 \text{ línes de di} \gg$$

$$R24 \quad n=? \quad \# \text{ loc} = 64K = 64 \times 1024 = 65536$$

$$n = \frac{\ln 64K}{\ln 2} = 16 \text{ línes de di} \gg$$

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

$$n = \frac{\ln 4T}{\ln 2} = 42 \text{ línes de di} \gg$$

R26 $n=?$ $\# \text{ bits} = 128 \text{ M} = 128 \times 1024^2 = 134217728$

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

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

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

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

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

R29 $n=?$ $\# \text{ bits} = 8 \text{ M} = 8 \times 1024^2 = 8388608$

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

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

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

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

$$\frac{1,718 \times 10^{10}}{10^9} = 17,18 \text{ Gb} \approx 17,18 \text{ giga bits}})$$

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

$$\frac{1,759 \times 10^{14}}{10^9} \Rightarrow 1,759 \times 10^5 \times \frac{1 \text{ G}}{10^9} = 175921,0604 \text{ Gb}})$$

$\approx 175921 \text{ Gb}$

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

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

$\approx 62,5 \text{ MB}$

$$R34. \# \text{ bits} = 1K \times 32 \rightarrow 1024 \times 32 = 32768 \text{ bits}$$

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

$$R35. \# \text{ bits} = 512 \times 16 \rightarrow 512 \times 1024^3 \times 16 = 8,796 \times 10^{12} \text{ bits}$$

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

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

$$8,796 \times 10^{12} \text{ bits} \times \frac{1 \text{ Gb}}{10^9 \text{ bits}} = 8796,093 \text{ Gb} = \text{gigabits}$$

$$R37. \# \text{ bits} = 64M \times 64 = 64 \times 1024^2 \times 64 = 4294967296 \text{ bits}$$

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

$$R38. \# \text{ bits} = 64M \times 64 = 64 \times 1024^2 \times 64 = 4294967296 \text{ bits}$$

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

$$R39. \# \text{ bits} = 64M \times 64 = 64 \times 1024^2 \times 64 = 4294967296 \text{ bits}$$

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

$$R40. \# \text{ bits} = 64M \times 64 = 64 \times 1024^2 \times 64 = 4294967296 \text{ bits}$$

$$4294967296 \text{ bits} \times \frac{1 \text{ byte}}{8 \text{ bits}} \times \frac{1 \text{ KB}}{1024 \text{ bytes}} = 524288 \text{ KB} = \text{Kilobytes}$$