**PRÁCTICA 4:**

Problemas con la memoria RAM

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| Datos del alumno | |
| Nombre: | Apellidos: |
| Fecha: |  |
| 1. Problemas con la RAM | |
| El test de memoria RAM que realizan las rutinas POST del BIOS puede ser eficaz en detectar errores hardware, pero no en encontrar errores intermitentes (errores soft).   * La mayoría de los errores intermitentes de memoria se producen cuando una celda se ve afectada por lo que se escribe en otra celda adyacente. * Una forma de detectar estos problemas sería escribir un cero en una celda y unos en las adyacentes para luego comprobar si esto ha afectado al valor original.   + Este método requiere algo complicadísimo: conocer exactamente la arquitectura de cada chip de memoria de cada módulo.   + A pesar de ello, existen algoritmos que consiguen aproximarse a este método. | |
| 1. MEMTEST86 | |
| Utilizaremos esta herramienta software para chequear la RAM más exhaustivamente que el BIOS.   * Lea el siguiente extracto del manual del programa para responder a las preguntas que vienen a continuación del texto.   *RE-SEATING MEMORY MODULES*  *In many cases, memory problems are caused by a poor connection. This can be resolved by simply removing and reinstalling the memory module(s) using the following procedure.*  *1. Using the documentation for your motherboard locate the memory module slots and identify the memory module(s).*  *2. Using proper anti-static handing procedures remove the memory module(s). In most cases this is done by pressing down on the locking tabs at the end of the module slot.*  *3. Carefully clean any dust or debris from the module and the motherboard memory module slots.*  *4. Reinstall the memory module(s) into their original slot on the motherboard.*  *5. Rerun MemTest86.*  *TROUBLE-SHOOTING MEMORY ERRORS*  *Please be aware that not all errors reported by Memtest86 are due to bad memory. The test implicitly tests the CPU, L1 and L2 caches as well as the motherboard. It is impossible for the test to determine what causes the failure to occur. Most failures will be due to a problem with memory. When it is not, the only option is to replace parts until the failure is corrected.*  *Once a memory error has been detected, determining the failing module is not a clear-cut procedure. With the large number of motherboard vendors and possible combinations of simm slots it would be difficult if not impossible to assemble complete information about how a particular error would map to a failing memory module. However, there are steps that may be taken to determine the failing module. Here are three techniques that you may wish to use:*  *1) REMOVING MODULES*  *This is simplest method for isolating a failing modules, but may only be employed when one or more modules can be removed from the system. By selectively removing modules from the system and then running the test you will be able to find the bad module(s). Be sure to note exactly which modules are in the system when the test passes and when the test fails.*  *2) ROTATING MODULES*  *When none of the modules can be removed then you may wish to rotate modules to find the failing one. This technique can only be used if there are three or more modules in the system. Change the location of two modules at a time. For example, put the module from slot 1 into slot 2 and put the module from slot 2 in slot 1. Run the test and if either the failing bit or address changes then you know that the failing module is one of the ones just moved. By using several combinations of module movement, you should be able to determine which module is failing.*  *3) REPLACING MODULES*  *If you are unable to use either of the previous techniques then you are left to selective replacement of modules to find the failure.*  *Sometimes memory errors show up due to component incompatibility. A memory module may work fine in one system and not in another. This is not uncommon and is a source of confusion. The components are not necessarily bad but certain combinations may need to be avoided.*  *I am often asked about the reliability of errors reported by Mestest86. In the vast majority of cases errors reported by the test are valid. There are some systems that cause Memtest86 to be confused about the size of memory and it will try to test non-existent memory. This will cause a large number of consecutive addresses to be reported as bad and generally there will be many bits in error. If you have a relatively small number of failing addresses and only one or two bits in error you can be certain that the errors are valid. Also, intermittent errors are always valid.*  *All valid memory errors should be corrected. It is possible that a particular error will never show up in normal operation. However, operating with marginal memory is risky and can result in data loss and even disk corruption. You can be sure that Murphy will get you if you know about a memory error and ignore it.*  Responda a las siguientes cuestiones:   * ¿Qué otros elementos pueden ser los causantes de los problemas achacados a la RAM? * ¿Qué método emplearías si el sistema puede funcionar con menos memoria que la instalada? * ¿Qué método emplearías si dispones de 3 o más módulos de memoria? * ¿Qué otro problema de compatibilidad puede ser el causante de los errores detectados? * ¿Cuándo podemos considerar válidos los errores detectados por MEMTEST? * ¿Qué puede suceder si no tomamos medidas ante errores intermitentes? | |
| 1. Informe | |
| 1. Descargue la herramienta MEMTEST86 del siguiente enlace: <https://www.memtest86.com> 2. Utilice el ejecutable *imageUSB.exe* para crear un USB “booteable” con la herramienta. 3. Arranque el sistema mediante el USB para que se ejecute MEMTEST86.    * Según MEMTEST, ¿cuál es el tamaño y velocidad de transferencia de la cache L1, L2 y la memoria de su PC?    * Busque y seleccione la opción sobre *SPD Info*. ¿A qué se refiere dicha opción?    * ¿Qué información muestra esta opción?    * Indique cualquier otro dato técnico que le haya llamado la atención sobre la memoria de su PC: | |