Why does computer RAM fail?

Posted on Nov 08, Posted by Paul Category FAQ

RAM modules are made of "solid state" electronic components and are generally very reliable because they don’t have any moving parts but occasionally they do fail.

Faults during manufacture:

Occasionally manufacturing faults can cause the module to fail after some time. Dry solder joints, faulty components or faulty design can contribute to the failure

Thermal damage:

When a computer is powered on, components heat up and expand. When it’s powered off, the components cool down and contract. Over time this can fatigue components and cause them to fail.

Overheating:

Computer fans can fail or the computer can be put into a space that doesn’t allow enough space for the air to circulate or something blocks the computer ventilation ducts

Voltage too high or too low:

The model or type RAM is not correctly matched to the motherboard. The motherboard provides enough voltage for the RAM operate normally most of the time but not all the time. Power spikes or other power fluctuations cam damage RAM as well

Timing out of spec or Overclocked:

Some users manually change the timing of the various RAM operations to increase performance. This commonly referred to Overclocking. Some motherboards actively support Overclocking and allow the user to manually set all RAM settings.

Improper design or mismatch:

To maximise performance and stability, all RAM modules in a computer should be exactly the same. Dissimilar modules may be used but they are generally not as reliable as matching modules.

Damage due to improper handling:

The RAM module can be damaged if its removed while the computer powered up or if its removed while the motherboard still has a residual charge after its been powered off. RAM modules can also be damaged by static discharge if a user touches it and they are not grounded.

Faulty connector:

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The connector on the motherboard or the contact strip on the RAM module can be damaged in a number ways. We have customers that live near the sea and suffer from salt corrosion. Connectors can be bumped by users working inside the computer. Thermal damage can cause connectors to fail.

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