MM (ESD) Induced Latch-up Testing

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MM (ESD) Induced Latch-up Testing – What is it?

➢ Latch-up testing, using a low level ESD event, generally a Machine Model type pulse, in an attempt to replicate possible fast transients a device may see while powered

➢ This is sometimes referred to as Powered ESD testing

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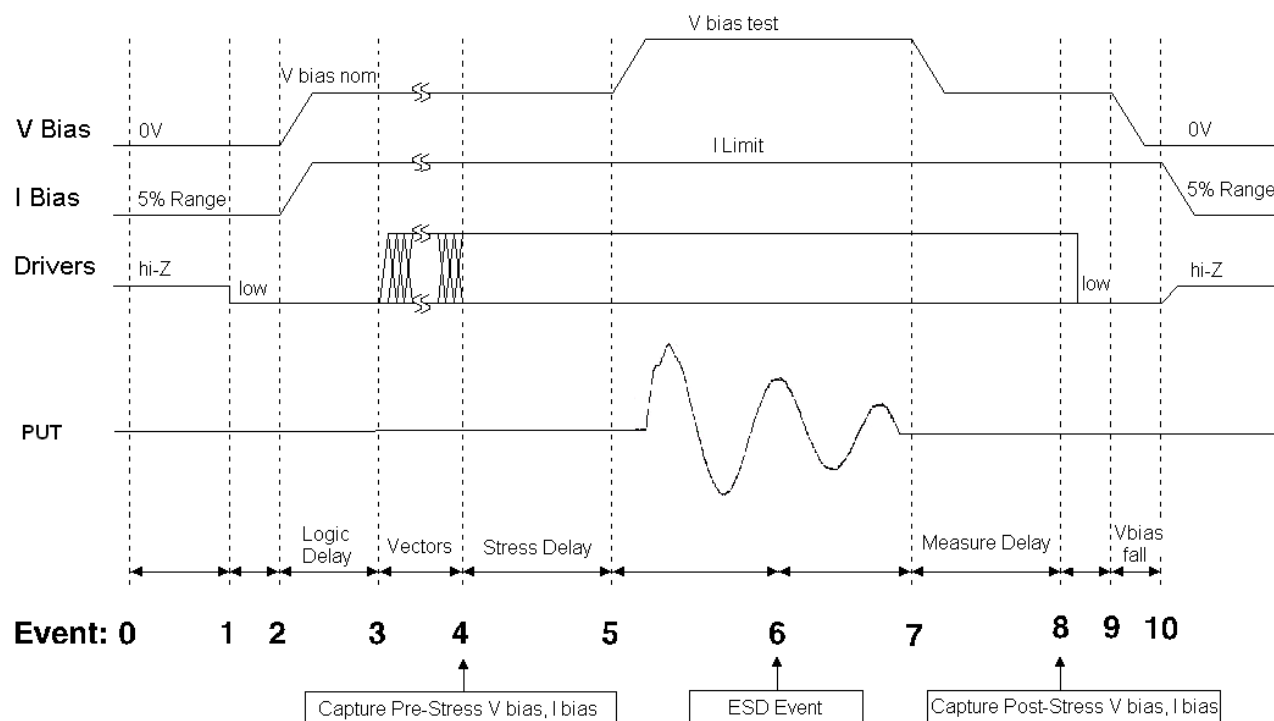
ESD Induced (MM) Latch-up Testing – Why is it being used

➢ It has been shown that the square waveform pulses delivered by the JEDEC style latch-up test, may not replicate all types of latch-up failures seen in real world scenarios

➢ In an attempt to duplicate real world latch-up failures, some industries have elected to use Fast Transients, such as an ESD event in an attempt to replicate real world failures

➢ There have been a number of "internal company standards" that have specified this requirement, some even discuss the use of both a 200pF/0Ω and a 500pF/0Ω network

➢ These real world transients can be caused by glitches on device power, perhaps by hot switching of PCB cards or glitches on the power line caused by surges

ESD Induced (MM) Latch-up Testing – Why is it being used

➢ With the latest release of the Scimitar application, which is used on all of our MK series of testers, the operator will have the ability to perform ESD Induced latch-up testing using either a low voltage MM or low voltage HBM pulse

  ➢ The screen capture below simply shows the flow of the test
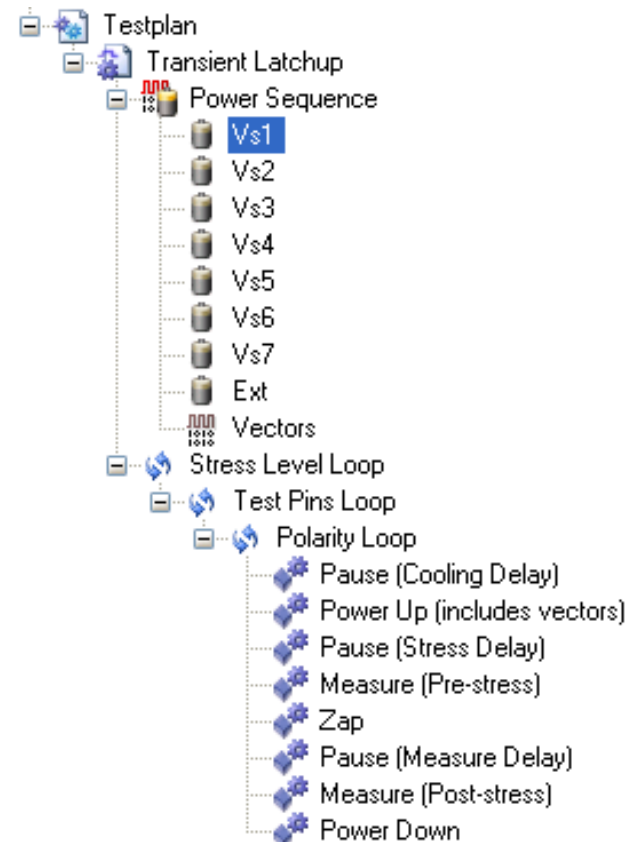
Note: This function is presently available on the MK4 platform only. Will be available on the MK1/MK2 in Q1 of 2014

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ESD Induced versus TLU (Transient Latch-up)

➢ ESD Induced Latch-up, which uses a MM waveform as a stimulus should not be confused with the Transient Latch-up method being worked on the ESD Assoc. WG5.4

➢ Although MM is one of the waveforms being considered by the Working Group as a possible stimulus for Transient Latch-up testing, it is only one variant that is being investigated

➢ As the Working Group continues it's work on a new test method, we will be working closely with them to ensure we're able to meet the requirements of a new method

  ➢ Method may require multiple waveform variants
  ➢ There may be special power supply requirements, to ensure they react fast enough to allow triggering and capture of the latch-up

Questions?

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